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ABSTRACT

This paper consists of the working document and the final report of an international panel which met in Paris in 1980 to discuss the future development of education in Unesco countries. There are four major sections to the working document which comprises the bulk of the paper. The topic of the first section is significant trends in the recent evolution of education. Many topics are discussed including pupil enrollments in developed and developing countries; educational personnel; illiteracy; educational administration, structure, and content; financing; and educational policy. The second section deals with current issues in education. Discussed are democratization; access to education; educational achievement and opportunity; relevance; education in relation to science and technology; education and culture; the interaction of education and the mass media; education and social development; and efficiency. Examined in the third section are factors affecting the development of education such as demography; the economy; science and technology; environmental factors; social and cultural factors; political factors; and international relations. Orientations for reflecting on the future of education are presented in the fourth section of the working paper. The final report which concludes the paper summarizes the topics discussed in the meeting. (Author/RM)

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UNITED NATIONS EDUCATIONAL,
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Reflection on the Future Development of Education

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MEETING OF THE INTERNATIONAL PANEL

Paris, 17-21 November 1980

1. WORKING DOCUMENT
2. FINAL REPORT

SO 013664

Division of Educational Policy
and Planning

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FOREWORD

Unesco's Division of Educational Policy and Planning reproduces selected technical papers in the present "Reports, Studies" working series with the aim to disseminate information and ideas on current issues of interest to educational policy-makers, planners, administrators and school architects. Papers are distributed on request to Unesco programme specialists and to interested technical personnel in governmental and private institutions.

Most of the papers in the series were originally prepared for one of the Division's study projects, meetings or conferences, and have been selected because of their topical interest. The opinions expressed in the papers are those of the author and do not necessarily represent the views or policies of Unesco. The reader should also bear in mind that many of the papers are working documents, unedited and are not intended for public distribution. Thus, linguistic deficiencies are evident in some papers, due to the fact that the author has written in a language other than his or her mother tongue.

The series includes two general types of papers: (i) those focusing on the education system or some educational problems in a particular country (numbered C.1, C.2, etc.) and (ii) those treating a subject with a broader or indefinite geographical context (numbered S.1, S.2, etc.). The current list of titles, which contains an index by country and by general subject, may be obtained from the address at the bottom of this page. Comments on the series and on particular papers are most welcome.

AVANT PROPOS

La Division des politiques et de la planification de l'éducation de l'Unesco reproduit certains documents techniques dans la série "Rapports et Etudes" afin de diffuser des informations et des idées relatives aux problèmes courants auxquels doivent faire face les décideurs, les planificateurs et les administrateurs de l'éducation ainsi que les architectes scolaires. Ces documents sont distribués sur demande aux spécialistes de l'Unesco et aux cadres techniques intéressés d'institutions gouvernementales et privées.

La plupart des documents de cette série ont été à l'origine préparés pour des programmes d'études de la division, des réunions ou des conférences et ont été sélectionnés en fonction de l'actualité du sujet traité. Les idées exprimées sont celles des auteurs et ne reflètent pas nécessairement les vues et politiques de l'Unesco. Les lecteurs doivent également tenir compte du fait qu'il s'agit souvent de documents de travail inédits qui ne sont pas destinés au public. De plus, certains auteurs ont rédigé leur document dans une langue qui n'est pas la leur, ce qui explique quelques faiblesses linguistiques.

Cette série se divise en deux catégories de documents : (1) ceux qui ont trait au système éducatif, ou à un aspect particulier de l'éducation dans un pays donné (numérotés C.1, C.2, etc.) et (2) ceux qui traitent d'un sujet dans un contexte géographique plus large ou non défini (numérotés S.1, S.2, etc.). La liste actualisée des titres, qui contient un index par pays et par sujets, peut être obtenue à l'adresse ci-dessous. Tout commentaire éventuel sur cette série et sur chacun des documents serait apprécié.

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PREFACE

Unesco's programme activity entitled "Reflection on the Future Development of Education" is intended to explore the prospects for the development of education over the final two decades of the century and to outline priorities for international cooperation in education. To this end, the Secretariat has been collecting and analyzing documentation and undertaking a number of supporting and thematic studies, many of which are being published in the present "Reports and Studies" working series. During the latter part of 1980, five regional symposia were organized in Pattaya (Thailand), Dakar, Beirut, Caracas and Paris, with a view to identify significant trends and problems in the development of education within the respective regions. Reports of those discussions were then presented to an international panel, which met at Unesco Headquarters from 17 to 21 November 1980.

The present document comprises the Working Document prepared by the Secretariat for that meeting of the International Panel and the Final Report of the meeting.

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UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

REFLECTION ON THE FUTURE DEVELOPMENT OF EDUCATION

Meeting of the International Panel

Paris, 17-21 November 1980

1. WORKING DOCUMENT

(ED-80/CONF.809/COL.1)

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Introduction

1. At its 20th session in 1978, Unesco's General Conference approved a programme having as one of its objectives the promotion of educational planning and policy-making in its Member States. One of the activities included in the work plan is entitled "Reflection on the future development of education", designed to stimulate future-oriented thinking on education with a view to developing the capacity to take into account the probable impact of various factors on the evolution of education when elaborating educational policies and plans in a long-term perspective. This same activity is intended to help define future priorities for international cooperation in education and particularly the contribution Unesco can make to the Third United Nations Development Decade (1981-1990), within the context of the establishment of the new international economic order. A report on the activity will be presented to the Member States of Unesco at the 38th session of the International Conference on Education, scheduled to meet in September 1981.

2. The actual process of reflection will involve eminent educators, scientists and cultural specialists, as well as educational practitioners. A series of regional symposia have been organized in 1980 to consider the prospects for the development of education in each of the major regions of the world : Asia and Oceania, 2-4 September ; Africa, 9-11 September ; Arab States, 7-9 October ; Latin America and the Caribbean, 15-17 October ; and Europe, 3-5 November. The international panel convened at Unesco Headquarters from 17 to 21 November 1980, for which this working document has been prepared, will consider the world wide implications of the findings of the regional symposia with a view to identify the major trends and factors which are likely to influence the development of education over the next twenty years. The panel will be invited to explore in an objective manner the possible paths of that development, distinguishing among them, if possible, those which appear to be most probable and to advise the Unesco Secretariat regarding which factors or issues require more careful study and elaboration in the report to the Member States. It is intended to convene a second meeting of the international panel to discuss and comment the draft report in the course of the first semester of 1981.

3. The present document has a twofold purpose : first, to provide a general frame of reference for reflecting on the future development of education, and secondly, to stimulate this reflection by providing a number of facts and speculations and posing a number of questions. Since most inquiries into the future are based on an analysis of the present, and usually of the past as well, the first section of the paper proposes a brief review of some of the main trends and characteristics of the recent evolution of education. This section is intended to call certain facts to mind, rather than to provide a thorough analysis. The second section takes a closer look at certain problems or issues of education in the world today, primarily as they may appear to the educators, planners, and policy-makers who will prepare, make and apply most of the key decisions which will contribute to the actual course of educational development. The third section outlines what appear to be the major factors which will shape educational development during the next two decades. The concluding section suggests some orientations for reflecting on the future of education and poses a number of specific questions on which the Unesco Secretariat would like to invite the opinions of the participants of the meeting.

4. In view of the world-wide scope of this activity, broad generalizations are inevitable in the following text, even though some are moderated with reference to "developing countries" or to "developed countries" or to one or another geographical region. Therefore the reader is cautioned to interpret general statements with care, particularly when applying or evaluating them with respect to a given country or group of countries.

I. SIGNIFICANT TRENDS IN THE RECENT EVOLUTION OF EDUCATION

Education is both a world in itself and a reflection of the world at large. It is subject to society, while contributing to its goals, and in particular it helps society to mobilize its productive energies by ensuring that required human resources are developed. In a more general way, it necessarily has an influence on the environmental conditions to which it is at the same time subjected, even if only by the knowledge about these which it yields. Thus, education contributes to bringing about the objective conditions of its own transformation and progress.

(Learning to Be)

5. During the past few decades, development policies and strategies have favoured economic growth and, consequently have given priority to types and levels of education which seemed to have a more direct impact on economic growth : secondary education, because of its role in preparing middle-level technicians and management personnel, and higher education, which produces the specialists and senior management personnel required by the economy and the public administration. In the course of the 1970s, a new concept of development gradually emerged which links together economic, social and cultural aspects, requiring the involvement of the entire population; hence a certain level of education for everyone became recognized as desirable, if not essential. Therefore, more attention has been given in very recent years to mass education, notably primary education and adult literacy programmes. This new concept of development centred on man has also been accompanied by strong ethical concerns, both with respect to the rights of individuals, including the right to education and to the need to establish a more just "new international economic order". These ethical considerations have reinforced the long-term tendency towards democratization of societies and, consequently, of education as well.

6. Thus, one can discern a number of significant evolutionary trends in education which may, for convenience sake, be grouped under three broad headings : quantitative and spacial expansion, qualitative improvements and changes in educational policy and in the management of the enormous human, financial and material resources of education systems.

A. Quantitative and spacial expansion

Pupil enrolments

7. Certainly one of the more significant trends in the evolution of education over the past two decades has been the rapid expansion in total school enrolments at all levels : from an estimated 327.8 million in 1960 to 586.8 million in 1976. However, the rate of growth has slowed significantly from 4.2 % per annum during the 1960s to 2.8 % per annum during the 1970s. Of course the pattern and pace of expansion

has varied considerably from country to country and from region to region. In general terms, the expansion was most noticeable in the developing countries where enrolments increased by a factor of 2.2 at the primary level, 3.5 at the secondary level, and 5.2 at the tertiary level between 1960 and 1977. Table 1 shows the positive effect of this expansion on the enrolment ratios at all three levels of education.

TABLE 1 - Enrolment ratios by age-group. Both sexes (percentage of age-group enrolled)

REGION*	Age-group 6-11			Age-group 12-17			Age-group 18-23		
	1965	1975	1985	1965	1975	1985	1965	1975	1985
Developed c.	92	94	94	79	84	89	24.6	30.0	35.9
Developing c.	54	62	68	28	35	42	5.0	8.7	12.1
Africa	40	51	61	22	31	42	2.7	5.8	9.4
Latin America	65	78	86	43	57	67	9.1	19.7	29.5
East Asia	97	99	100	73	83	92	11.2	19.8	28.5
South Asia	56	61	66	26	31	36	5.0	6.9	8.6
25 LDC	19	28	39	12	17	26	1.1	2.7	5.0
Sahel Countries	15	19	26	9	13	18	1.1	2.6	3.7

Source : Unesco, Office of Statistics

8. In the developed countries, which have universal primary education and a relatively slow rate of population growth, the increase in enrolments was due mainly to efforts to generalize secondary education and to expand higher education. The number of students at these two levels grew by 79% and 195 %, respectively, from 1960 to 1977. These same countries have also recorded a significant increase in pre-primary enrolments, up from 30 % of the age-group in 1965 to 57 % in 1978.

9. Despite the rapid expansion of overall enrolments, the absolute number of children not enrolled in school has continued to grow, as shown in Table 2, and marked disparities in access to education persist, not only between countries and regions, but also within each country.

TABLE 2 - Out-of-school youth. Both sexes (millions)

REGION	Age-group 6-11			Age-group 12-17		
	1965	1975	1985	1965	1975	1985
Developed c.	9	7	7	23	19	12
Developing c.	110	121	130	139	173	197
Africa	30	32	34	32	37	41
Latin America	14	11	9	18	19	19
East Asia	0.5	0.1	0.1	5	3	1
South Asia	66	77	86	99	115	-137

The vast majority of developing countries have fallen short of ensuring universal primary education by 1980 -- the goal agreed at regional conferences held in the early 1960s at Addis Ababa, Karachi, Santiago de Chile, and Tripoli. One of the principal reasons for this failure is the rapid growth in the school-age population, but another is the relatively low priority accorded primary education in comparison with secondary and higher education. Post-primary levels of education have received a disproportionate share of the scarce human and financial resources allocated to education ; thus, for example, the unit cost of higher education is often over 100 times that of primary education.

Educational personnel

10. Parallel to the expansion in school enrolments, there has been a considerable increase also in the number of teachers, administrators, and other support personnel. For example, in Asia alone an additional 2.3 million teachers took up service between 1965 and 1975, and the number of teachers in Latin America actually more than tripled between 1960 and 1977. The expansion of the teacher corps has generally occurred at a more rapid pace than the expansion of enrolments, as shown in Table 3.

TABLE 3 - Annual rate of growth of number of teachers and of school enrolments at all levels (%)

	Teachers		Enrolments	
	1960-70	1970-76	1960-70	1970-76
Africa	5.9	7.3	6.1	6.5
Latin America	6.9	6.9	6.1	5.3
Asia	5.5	3.7	5.0	3.5
Arab States	7.2	8.2	6.8	6.7
Developed countries	4.2	2.0	2.5	0.6
Developing countries	6.5	5.3	6.2	4.5

Source : Unesco, Office of Statistics

11. However, within this overall increase there were shortages of qualified teachers for employment in rural and remote areas, shortages of science and mathematics teachers, and mismatching between the academic background of teachers and their teaching assignments. Many developing countries were obliged to recruit a large percentage of unqualified teachers, particularly at the primary level. By contrast, in the developed countries there is currently an excess of teachers, especially at lower levels, and there is a consequent trend to redeploy these teachers to other levels.

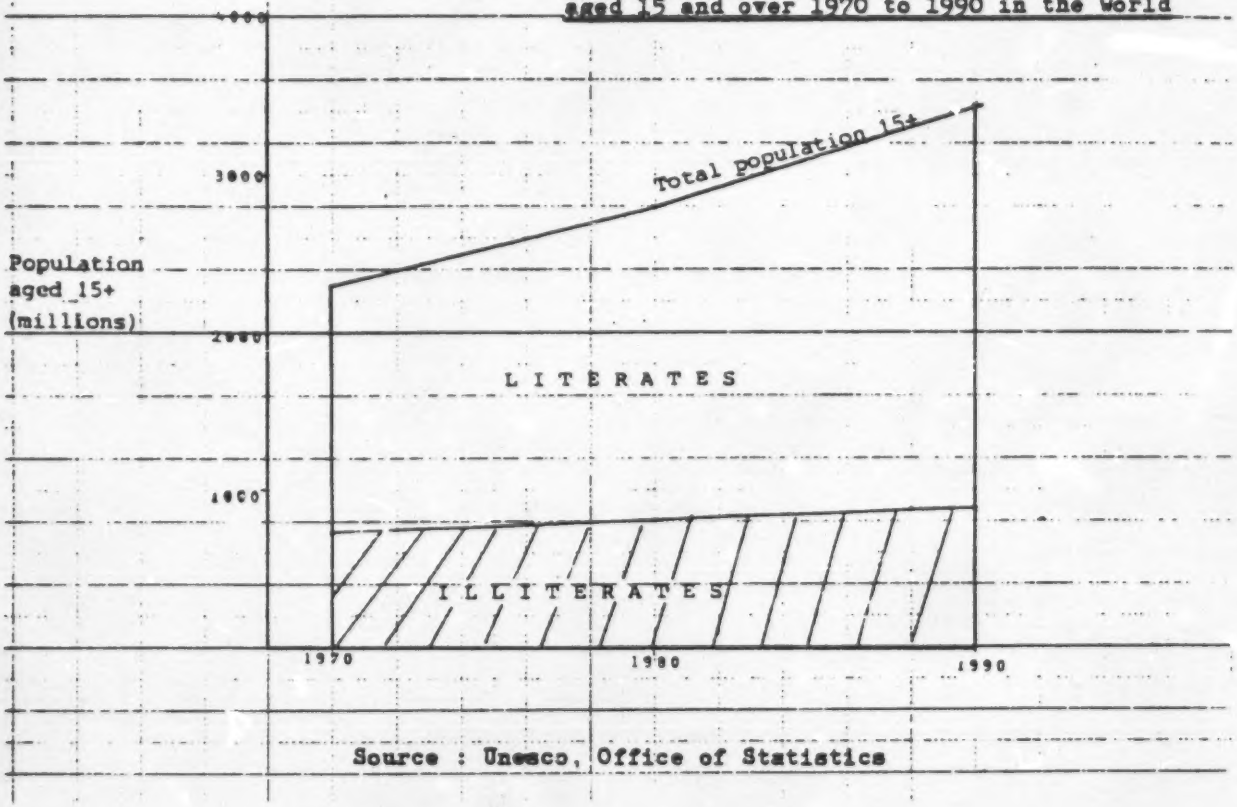
Illiteracy

12. The persistence of illiteracy in the rural areas of the Third World is one of the alarming consequences of the failure as yet to provide universal primary education. Today, it is estimated that over 130 million children in the 6-11 age-group receive no schooling at all; this figure

corresponds to about 40 % of the primary school age-group in Africa, southern Asia, and the Arab States and 10-20 % in Latin America. Girls and children in rural areas constitute the majority of those totally excluded from education.

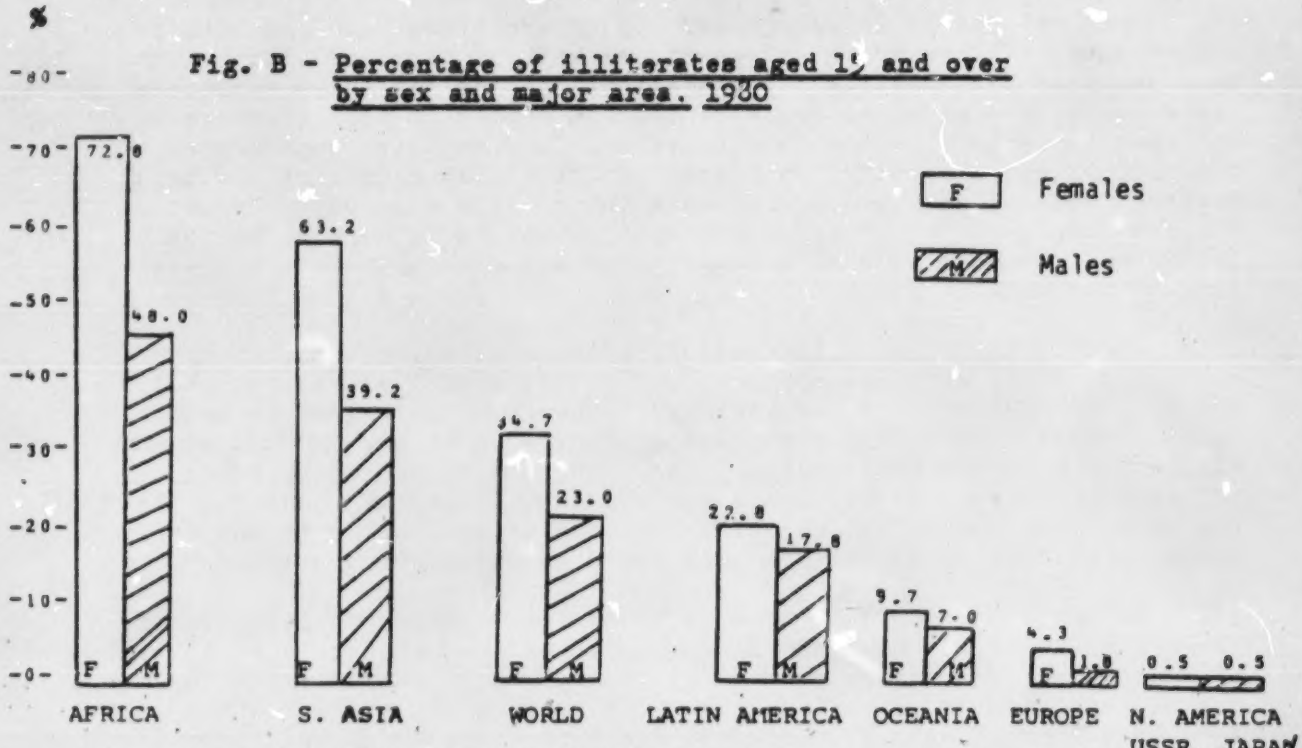
13. Although the percentage of illiterate adults (aged 15 and above) in the world is steadily declining, the absolute number of illiterates has continued to grow. According to recent estimates the number of adult illiterates increased from 742 million in 1970 to 814 million in 1980, of which 60 % are women, and the total may grow to 884 million by 1990. See figure A. The proportion of adult illiterates in the population varies considerably from region to region, as shown in figure B, but women constitute the majority of illiterates in all cases.

Fig. A - Proportion of literates and illiterates aged 15 and over 1970 to 1990 in the world



Source : Unesco, Office of Statistics

Fig. B - Percentage of illiterates aged 15 and over by sex and major area. 1980



Source : Unesco, Office of Statistics

Literacy campaigns have achieved good results in certain countries, but except in those rare cases where the campaigns were conducted with determination by governments and supported enthusiastically by popular movements, their effect so far has been rather limited. The decrease in the rate of illiteracy recorded in recent years has been brought about principally by the gradual extension of schooling.

B. Qualitative improvements

14. Education systems originally designed to train and perpetuate an elite soon proved inadequate to cope effectively with the quantitative expansion and social pressures described above nor with the more varied demands deriving from a student body having a much broader socio-cultural background. Changes in the very goals and structure of education, as well as in its contents and methods, were required. Thus, the same impetus towards democratization which underlay the expansion of education also led to major changes in the quality of education

The structure of education

15. Numerous structural reforms and innovations have been undertaken during the past two decades, often in connection with the extension of compulsory schooling. Most developing countries have endeavoured to provide some form of universal primary education, usually varying from three to six years, and some have extended compulsory education into the lower secondary cycle. In the developed countries, compulsory education includes primary and, in most cases, lower secondary schooling. Many developed countries have continued expanding pre-primary education in response to the needs of working mothers and in recognition of the importance of early learning experiences. However, efforts to provide pre-primary education in the developing countries have been very limited

16. Most reforms of secondary and higher education have resulted in a diversity of "tracts" or "streams", as well as types of institutions, many designed for vocational preparation. In the developed countries there has been a parallel movement towards common or core programmes, at least at certain points in the system, thus ensuring some degree of unity within diversity. A number of these same countries now have several forms of post-secondary education ; while some offer "short courses" designed for professional specialization, others offer the traditional courses of a more theoretical and general nature and leading to research.

17. Another significant phenomenon, evident in a large number of countries is the growing importance of out-of-school educational activities at all levels, in the general framework of life-long education. While such activities are sometimes conducted under the general supervision of the educational authorities, many are sponsored by other official or private bodies and organizations, including industry. In the developing countries, out-of-school educational activity has been characterized by adult literacy and basic education programmes.

18. In addition to providing more education to more people, some of these structural reforms have aimed to reduce the frequently high level of educational wastage so evident in the number of pupils repeating grades and dropping out of school. This concern underlies the introduction of more flexible procedures for pupil assessment and promotion and for lateral transfer from one "stream" or type of education to another.

19. The implementation and impact of these structural reforms has not always been what was desired, and certain reforms have proved to be ineffectual in practice. Yet, the need to devise education systems capable of catering to the needs of all individuals and of society remains, so the trend towards structural reform will certainly continue though perhaps at a more careful pace.

Educational content

20. During recent years many countries have introduced important changes in the content of education at all levels, particularly in response to increasing attention to the social and cultural relevance of education, to concern about the relationship between education and the world of work, and to progress in science and technology. There seems also to be a renewed interest in the ethical and civic dimension of education, as well as in physical education and sports. The content of education is now increasingly understood to go beyond the explicit curriculum and include a "latent content" offered by school life, teacher-pupil relations, work experience, and the totality of written and audio-visual messages encountered by pupils. Many curricula reforms have aimed to enable the learner to understand and interpret facts and phenomena in their entirety, often through an interdisciplinary or problem-solving approach.

21. Developing countries, in particular, have sought in various ways to adapt or to overhaul the content of education to make it relevant to their unique cultural and social context. This involves the difficult task of synthesizing modern knowledge and attitudes with traditional

values, customs and life-styles. In this connection many countries have introduced the use of local languages, rather than the language of the ex-colonial power, as the medium of instruction, at least in the lower levels of schooling. This is not merely a matter of substituting one language for another, it also involves the structure of thought and perception of the world inherent in language.

22. More and more developed and developing countries have introduced productive or practical work into the general curriculum both as a pedagogical device, and as a means to relate education more closely to the world of work. For many countries this has meant resolving the dichotomy which has long existed between general education and vocational training. Three general approaches have been used to this effect : introducing practical or productive work into general education; introducing general education into vocational training ; and alternating study and work. In the socialist countries, there has been a reaffirmation of the important role of polytechnical education in introducing pupils to the world of work. Usually these various approaches have been accompanied by the introduction of vocational, as well as academic, guidance in the schools, especially towards the end of compulsory education.

23. Perhaps the most spectacular recent changes in the content of education are those connected with scientific and technological progress. Much effort has been made to adapt instruction in the basic sciences (e.g. physics, chemistry, biology, mathematics) and in technical subjects to the needs of individual pupils, especially at primary and secondary levels, and to the needs of society. The underlying aim of the new curricula is to develop a better understanding of science and technology, to stimulate the spirit of inquiry, to promote a scientific attitude, to awaken creativity, and to initiate the learner to problem solving. Many, if not most, curricula reforms in this field also have sought to link the teaching of science and technology more closely with social, cultural and ecological issues.

Teaching methods

24. Along with changes in the content of education have come innovations in the teaching-learning process itself, sometimes leading to a new role for the teacher and new responsibilities for the learner. Teaching based on memorization is losing favour to methods which develop the powers of observation, analysis and reasoning, or in other words, the ability to learn. Thanks to the technological innovations developed during the 1960s, education today is in a position to make use of very sophisticated media, such as radio, television, film, audio and video-cassettes. Similarly, programmed courses, computer-assisted tuition, and well-equipped science and language laboratories are used in numerous countries around the globe.

25. Nevertheless, the revolution in the teaching-learning process anticipated two decades ago is yet to come. More often than not, educational technology has been used to support innovations that have proved more spectacular than far-reaching and have not really altered the learning situation nor the relationship between teacher and learner. Furthermore, it is probably in the field of educational technology where the gap separating the developed and developing countries is most evident. While teachers and pupils in the former have various educational materials and techniques at their disposal, the vast majority of classrooms in the developing countries, especially in rural areas, do not have even a blackboard, and pupils have neither paper nor pencils nor even textbooks.

26. In view of these problems it is not surprising that many countries, with and without modern educational technology, have reemphasized the importance of the human factor in the educational process, notably the role of the teacher. Developed countries, which by and large have an adequate number of qualified teachers, have extended the duration of initial training of teachers and provide in-service training to update their knowledge of basic subjects and to inform them of new teaching methods and techniques. Increasingly teachers in these countries are trained to organize learning experiences and to stimulate pupils to learn and to develop their capacities.

27. In the developing countries, where the quality and the numbers of teachers are usually unsatisfactory, the trend is to provide a relatively short period of initial training, to permit intensive recruitment, and to concentrate on in-service training. The latter, however, is intended not so much to update knowledge but rather to complete the initial training, as well as to bring the level of training of teachers already in service up to an acceptable norm. Under the best of circumstances, the task is difficult because the least qualified teachers are very often posted in remote areas, are poorly supplied with teaching materials, have to cope with overcrowded classes, and frequently have low motivation to study.

Higher education

28. In view of its key role in the training of professionals, scientists, engineers and other highly qualified personnel, higher education occupies a position of strategic importance in the development effort of a country and in respect to the renewal of the entire education system. One indication already mentioned of the priority attached to higher education by most governments is the disproportionate share it receives of total public funding for education, e.g. up to 40 % in Latin America.

29. The enormous growth of secondary education has inevitably led to increasing pressure on higher education. The strict selectivity of some university systems and the "openness" of others (which relied on selection at the secondary level) were both called into question as the demand for higher education increased. "Numerus clausus" and other measures to control or channel access to higher education institutions and faculties were introduced in some cases while in others, new schemes to open the universities to a larger public were tried out, and many countries now have some form of "open university", often based on distance-learning methods and linked to adult education.

30. The growth in enrolments was accompanied by a diversification in the socio-cultural background, the age structure, and learning interest and needs of the students. Many countries report a distinct shift of interest away from the more traditional liberal arts to science-based subjects and vocation-oriented courses. In response to this new situation many developed and developing countries have experimented with and established new kinds of post-secondary institutions and programmes, many of which offer short courses aimed specifically at preparing students for employment. A few countries have taken this opportunity to "de-concentrate" their post-secondary institutions to achieve a better geographical distribution as well. More flexible admission, attendance and qualifications procedures, such as the "credit" system, have been widely introduced to enable workers and other part-time learners to progress in their studies as their particular situation allows.

31. Another trend of particular importance for entire educational systems is the increasing involvement of higher education institutions in the initial and in-service training of teachers for primary and secondary education. Similarly, universities and specialized institutes are giving more attention to educational research, to curriculum development and reform, as well as to more general issues of educational policy and planning. This involvement is expected to lead to qualitative improvements at all levels and to better articulation and coordination between levels.

32. Despite the widespread shift of emphasis to vocation-oriented courses, many countries expect their universities to ensure that each student is acquainted with and appreciates his or her own national cultural heritage. This cultural mission of universities is often extended to cultural research, particularly in the newly independent countries.

33. The traditional relationship between higher education and research seems to be evolving in at least two respects. While many of the new post-secondary institutions in the developed countries undertake virtually no research, the more traditional institutions continue to combine research with instruction, but are now frequently overshadowed by specialized research institutes. The trend in these countries and also in the developing countries has been away from basic research to more and more applied research. The latter countries continue to rely heavily on their universities for research to support national development efforts, but the volume of research is still very limited in comparison with their needs and with research generated in the developed countries.

C. Changes in the management of education systems

34. In order to cope with the unprecedented quantitative expansion of enrolments at all levels and to improve the quality of education, governments in nearly all countries have sought to strengthen their educational administration and their planning services, most of which were established during the 1960s. More attention has also been given to the geographical distribution of educational facilities and to their design, construction and maintenance. Public funding for education soared over the past decade or so, consuming between 20 and even 30 % of the public budget in some developing countries. The very magnitude of this undertaking has obliged an increasing number of governments to formulate an explicit education policy, usually linked with the overall national development policy.

Planning and administration

35. The most obvious trend in educational planning is the shift away from plans restricted solely to estimating manpower requirements towards broader plans which take into account social, ethical and cultural concerns, as well as economic considerations. Planners are increasingly concerned with qualitative aspects of education and hence the preperation of reforms and innovations in the structure of the education system and in the content and methods. Educational planning is now integrated into overall development planning in many of the developing countries, as well as in the socialist countries of Europe. Many countries have recently introduced measures to decentralize the planning process and some are mobilizing community participation in the preparation, implementation and evaluation of educational plans.

36. Decentralization and community participation are also current concerns in educational administration. For example, in Asia, decentralization of administration is reported to be a general trend, and in Latin America, some countries have introduced new machinery for multisectoral participation in the administration of education at the regional and local levels. With the advent of modern management techniques, a number of countries have undertaken reforms of their educational administration and have introduced numerous innovations, such as systems analysis and the use of computers for inventory control, the scheduling of courses, financial accounting, the payment of salaries, and data collection, storage, analysis, and retrieval.

Educational buildings and equipment

37. Expanding enrolments led to over-crowded classrooms in nearly all developing countries and some developed countries as well. Stopgap measures, such as scheduling classes in shifts, were introduced to cope with immediate classroom shortages, and many countries embarked on large-scale school building programmes. Such programmes have frequently been compromised by galloping inflation, other economic constraints and competition with other sectors for scarce building, craftsmen and construction materials, including imported steel, cement and galvanized roofing sheets.

38. One response to this problem is the growing development and utilization of local building materials and techniques, some of them with a long tradition in the culture. This trend has not only reduced building costs but has also enabled local communities to participate in the design and construction of schools. Conversely, more attention is now being given to design considerations suitable to the climate, the culture, and available building materials.

39. A parallel phenomenon is evident in the design and production of educational equipment of all kinds. While much of the more sophisticated scientific equipment continues to be imported, simple science kits and other learning materials, as well as school furniture, are now being manufactured in a number of developing countries. However, there is still a huge gap between the capacities of the developing and the developed countries to satisfy the equipment needs of their respective educational system.

40. In the developed countries the shortage of classrooms recorded a decade ago has now become a surplus, particularly at primary level. Many schools have been closed altogether, while in other cases they have been converted for other uses. With the expansion of life-long education, some school facilities in these countries, but also in developing countries, are being used after regular school hours for various non-formal and adult education programmes. In a few cases, new facilities have been designed for this dual usage.

Financing

41. There has been a noticeable diversification of sources of educational financing during recent years, due in part to the development of new types of formal and non-formal programmes and to efforts to implement a policy of life-long education. In addition to the ministries and departments responsible for education at national and local levels, other government departments, agencies, foundations and enterprises now play an important role in financing educational activities.

42. Over the past two decades the annual growth rate of public expenditure on education decreased from 10.9 % during the period 1960-65 to 6.5 % during 1965-74 and to 3.3. % during 1974-76. Although the developing countries increased their public expenditure on education throughout that period at a higher annual rate (8.5 %) than did the developed countries (6.5 %), the latter spent a larger share of their total resources measured by GNP : from 3.95 % in 1960 to 6.0 % in 1976, as opposed to 2.35 % and 3.99 % respectively for the developing countries.

Educational policy

43. In the past and occasionally still today, educational policy has consisted largely of a few guiding principles and vaguely worded goals, sometimes limited to one or another level or type of education. Most current policies define educational objectives in relation to social, cultural and economic goals and provide a comprehensive framework for all kinds and levels of formal and non-formal education. This clearly shows that education is now recognized as an integral part of the development process.

44. Two major policy orientations have emerged since the 1960s. The first is the universal concern to democratize education, primarily by providing access to education for all social groups and individuals and by favouring equality of educational achievement. The second is the related concern to make education relevant to a country's socio-economic and cultural context and to its development goals. While the formulation of these policy orientations and their application varies considerably from country to country, many countries have adopted the principle of life-long education as their implementation policy.

II. CURRENT ISSUES IN EDUCATION

45. The preceding review of the recent evolution of education provides a background for reflection on the future, whereas the present section attempts to suggest possible starting points for reflection by considering briefly certain major problems evident in educational systems around the world. These problems will be dealt with in relation to the two broad policy orientations : the democratization of education and the relevance of education to national development. Another closely related set of problems will be considered in relation to the efficiency of educational systems.

A. Democratization

46. Behind literacy rates, enrolment and promotion ratios and figures lies the unwelcome fact that the expansion and improvements observed in educational systems around the world have seldom benefitted the rural populations, the urban poor, minority groups, and, in many countries, girls and women. In other words, educational benefits have not reached the mass of the people. The belief has not been borne out that the benefits of educational expansion will trickle down and spread. The movement has been in the other direction, towards higher levels of education. This has led educational development to be linked very much to the "modern" capital intensive sub-sector of the economy, largely by-passing the traditional sub-sectors which rely on indigenous resources and skills.

47. The democratization of education also raises the question of the opening up of educational systems to workers and, more generally, to all those adults who have not been able to complete their studies or who would like for cultural or professional reasons to pursue their studies further or, again, who need, as a result of technological advances, or structural changes in the economy, to retrain for new specialized branches or professions. The development of life-long education thus is not only a question of structure, but also and especially one of democratization.

48. While developed countries as a whole and certain developing countries have been successful in guaranteeing all children access to primary education, equality in the chances of achievement is far from being universally ensured. Children from modest social backgrounds, in particular the families of manual workers, experience the most difficulties in pursuing their studies. Frequently, the majority of students in higher education come from families in comfortable circumstances, although those constitute only a small fraction of the population. Except where radical social reforms have taken place, the increase in enrolments modifies this situation only slowly.

49. The persistence of socio-economic inequalities in the world has brought about heightened awareness of the need to combat such disparities not only from the standpoint of social justice but also because they represent serious obstacles to development. The democratization of education is increasingly seen not simply as an ethical requirement and a prerequisite for the full development of the human personality but also as an essential factor in social and economic development.

Access to education

50. One of the most manifest injustices and obstacles to development is the growing world population of illiterates. Among those countries with a large illiterate population, some devote a tiny fraction of their resources to education, others allocate an insufficient proportion to primary education, while the resources of a third group are too limited to allow the introduction of universal primary education and current costs.

51. The elimination of illiteracy over the next 20 years would obviously require firm political will on the part of governments to give sufficient priority to the struggle against illiteracy. This priority would need to take the form of increased financing for primary education and adult literacy campaigns and, possibly, a lower growth rate for other levels of education even curbing the expansion of higher education where its effect is to disadvantage still further the poorest section of the population and to exacerbate the problems of employing graduates. For many countries, the eradication of illiteracy will pose serious financial problems, which might be alleviated to some extent by introducing more flexible and less costly forms of primary education and by mobilizing voluntary action among students and literate adults. A number of countries are faced also with the problem of finding ways to overcome the resistance of some families to the education of their children.

52. Any serious effort to eliminate illiteracy would involve both primary education and adult literacy work. The combining of these two kinds of programme, by attacking the problem on its two fronts, makes it possible to eliminate illiteracy in the shortest possible time while avoiding the division between two parallel systems of education. Each country will have to determine the relative emphasis to be given to each of the two elements. Should literacy work cater for all adult groups simultaneously ? Or should it begin with certain groups and be extended gradually until it covers all ? Or, again, should it concern itself solely with adolescents and young people with little or no schooling ? How can teachers and the people at large be encouraged to play their full part in a literacy campaign ?

Educational achievement

53. In addition to ensuring that all the inhabitants of the world can read and write, true democratization requires progress towards greater equality in the chances of achievement for children and adults from modest backgrounds. This particular issue has at least three aspects. The first has to do with the material difficulties encountered by children during their school careers : malnutrition, excessive school fees, and poor conditions for study. The problem is to improve these conditions without a prohibitive increase in the cost of education.

54. The second aspect is closely related to the first. Inequalities in educational opportunity are sometimes due to geographical disparities within a country in respect to the quality of education offered, in terms of physical facilities, teaching aids and materials, and the qualification of teachers, headmasters, and other educational personnel. Well qualified teachers generally hesitate to work in remote or deprived areas unless they are motivated to do so through a system of incentives. Whereas the buildings, equipment and personnel for secondary and higher education are normally financed by the government, it is not uncommon in developing countries to find that the responsibility for primary education lies with local communities, which often can provide only the most rudimentary facilities and meagre salaries for the least qualified teachers. Similarly, the secondary schools and universities in the developing countries, and in many developed countries, too, are concentrated in the towns and cities, rarely in the countryside, to facilitate access of rural children.

55. The third aspect concerns the structure and content of education in Africa, for example, if one looks at all the educational activities, within a single country, one could easily observe many different "systems" which operate almost independently from each other. One participant of the African regional symposium described the five following systems :

(i) the traditional system, which is disappearing ;

(ii) the informal popular system (such as apprenticeship), which occurs on the fringe of society ;

(iii) the informal elite system (mass media from abroad, social clubs, etc.) which is rather powerful ;

(iv) the modern popular system, which is considered as second rate ; and

(v) the modern elite system.

If one considers also that the formal system itself is composed of different types and levels of education, it is easy to understand that many initiatives in the field of education are outside the control or coordination of the ministry officially responsible for education. One result of this is that the dilemma of satisfying quantitative and qualitative needs is expressed increasingly in pedagogical terms, as well as financial.

56. Furthermore, governments everywhere are confronted, in fact, with two basic questions.

1. What are the characteristics required by an education system to ensure that all its users acquire the basic elements of their instruction without at the same time compromising the subsequent progress of the most able ?

2. How can one reconcile the dual requirement that each stage or level should have its own goal and that it should be a preparation for the next stage or level ?

These two questions lie at the heart of the issue concerning contents and structures and lead to a whole series of problems to which all countries need to find the right answers : the problem of the aims and duration of "basic" education ; ensuring a balance between general and specialized training ; establishing horizontal and vertical links between the various levels, stages and types of education ; and the problem of selection, guidance and assessment, which in many countries are still governed by intellectualist and elitist criteria, thereby favouring certain social and cultural groups.

Educational opportunity : access and achievement

57. The problems relating to equality of access and educational achievement need to be understood within the context of the democratization of society, including its social, political, cultural and economic dimensions. Educational reforms undertaken without concurrent changes in other sub-sectors of society have proved to have limited impact. Thus, for example, the success of a literacy campaign may depend far more on the political, social and economic measures taken in its support than on educational action per se.

58. In dealing with this issue, governments have numerous options to choose among but must weigh their social and educational implications together. For instance, in countries where universal primary education has not yet been achieved, should first priority be given to primary education ? What is the proper balance between government responsibility for education and local participation, particularly with respect to financing ? What compensatory measures should be introduced to support the access and achievement of children from disadvantaged social backgrounds ? What incentives might be offered to motivate qualified teachers to accept to work in rural areas and in urban slums ? In what measure could secondary schools and higher education institutions be located away from the major towns and cities ?

B. Relevance

59. The democratization of education will gradually ensure that all human beings will have the possibility to develop their individual personality, talents and intelligence. However, the individual does not exist in a vacuum : the natural and social environment are part of his or her existence. Therefore the relevance of education to that natural and social environment is an issue of fundamental

60. Relevance implies responsiveness to the multiple needs of society and to the requirements for its development. During the past decade the concept of development measured by GNP per capita has given way to a broader concept which recognized the complexity and multidimensional nature of development. This new concept has a firm ethical character expressed in terms of a "new international economic order" to underlie a world community based on equity and solidarity, in which each society will be able to play its own unique role. The new order will require a more just equilibrium in the world economy and in the spheres of technology and knowledge, without infringing the identity nor the dignity of any culture.

61. Education has a capital role to play in this regard because of its direct contribution to the growth of endogenous scientific and technological potential, not only in training the needed personnel, but also in contributing to the intellectual climate and attitudes conducive to the integration of science and technology within the culture of each society. Furthermore, the establishment of a new international economic order requires an effort in each country to eliminate all kinds of disparities and particularly in the field of education. Finally, the quest for a more just and interdependent world is inseparable from the promotion of human rights and peace through education. Thus education is confronted with several issues which derive from the rapid evolution of societies and from the birth throes of a new world order.

Education in relation to science and technology

62. Economic growth, which is an essential component of development, depends to a great extent on the dynamics of scientific and technical progress. We now know that technology transfers cannot suffice to ensure such growth unless in the societies concerned there is an internal driving force behind scientific and technical progress which makes it possible to control the process of technological innovation, and that such a driving force depends largely on the quality of science and technology teaching and the extent to which it is available.

63. In the past 20 years, great strides have been made in the training of specialists and middle-level professionals in various branches of science and technology. To set up and maintain teaching establishments of superior quality in science and technology at secondary and higher levels is a considerable undertaking, especially in sparsely populated countries whose resources are limited. With regard to the teaching of science and technology in primary and secondary schools, progress has been made in the integrated teaching of natural sciences, and their implications in important fields which affect man's living conditions, such as nutrition, population and the environment.

64. The experience of the past 20 years has shown that if such teaching is to be effective in encouraging attitudes and importing basic knowledge conducive to development, it must be based less on the memorization of facts and more on the acquisition of the ability to handle ideas and the stimulation of the faculties of observation, analysis and reasoning : experiments and practical work would therefore take a prominent place. It is also not enough to learn and understand various facts and phenomena, it is necessary to interpret and situate them in their entirety, within a synthetic view which brings to light their ramifications. This approach corresponds to a widely felt desire to go beyond intellectualism, with knowledge as an end in itself, to a further stage where knowledge leads to action. In this regard, there are lessons to be learned from the attempts made to add a scientific and technical dimension to general education, which include polytechnical education, comprehensive schools and the vocationalization of general secondary education.

65. Finally, the popularization of science and technology for the general public is a most important field of action if productivity is to be increased and if living conditions are to be improved in developing countries. The principal means of achieving it, apart from schools, are various out-of-school educational and cultural activities and the communication media. In countries where communication networks are as yet inadequate, a tremendous effort must still be made to facilitate the circulation of elementary scientific and technical information geared to specific socio-cultural contexts.

66. It is thus evident that in the years to come, educators will need to respond to a number of questions relating to science and technology, such as : how can science teaching in the schools be made more effective ? How can the costs of laboratories, equipment and materials for training in science and technology be reduced ? How might the mass media and out-of-school programmes be used to popularize science and develop scientific attitudes ? How can the national scientific community be involved in improving both scientific and technical training and the popularization of science ?

Education and culture

67. Today we are witnessing an expansion of educational activities and a burgeoning of cultural initiatives, in non-traditional forms and contexts, a wider demand for cultural goods and a more lively desire for self-expression and creation. These two movements may in some cases coincide, or they may run parallel or complement each other or be mutually exclusive. What problems do such a situation and such a dynamic process pose for educational policies and cultural policies respectively ? How might these two spheres be brought closer together and harmonized ? How might they give rise to co-ordinated work on large-scale joint projects ? What are the most obvious areas of overlap that might provide a point of departure for a unified educational/cultural policy ?

68. The central issue is how education stands in regard to the problem of cultural identity, and what role it can play. Education draws sustenance from society's traditions and values, but it also contributes to the creation and development of new values and new attitudes which look forward to the future. The educator, in attempting to develop new attitudes and an integrated personality, may find himself faced with real or apparent contradictions that he must be prepared to tackle with the greatest possible lucidity. How, for example, can the aspiration for satisfactory human relationships be reconciled with the structural complexity of modern life and with the many depersonalizing influences inherent in it ? How can one evaluate what is living and what is dead in the heritage of a tradition ?

69. Educators in many countries now expect general education to provide the following : a better knowledge of the national culture and a deeper awareness of its development and the workings of cultural mechanisms, respect for a heritage, which will find expression in loving conservation of what remains from the past, and also in its enhancement through new forms of expression and creativity ; and, lastly, greater sensitivity to the uniqueness of each culture, leading to the assertion of one's own identity without intolerance and rejection of the other, thus preparing the pupil's mind to grasp the oneness of humanity that transcends the diversity of forms of cultural expression.

70. Since it is through the medium of language that the most important contents and values of a culture may permeate and enrich education, the question of the language of instruction is a matter of great concern to many countries. This question, which is by no means merely a problem for grammarians or linguists, is a matter of the structures of thought and the mode of a person's perception of the world. This explains the unsatisfactory nature of attempts at educational reform which merely advocate the use of a national language, while the subjects taught are imported ready-made, or very superficially adapted, or attempts which are concerned with modernizing the methods of language teaching for the sake of bilingualism, but fail to tackle the whole problem of content and intellectual processes. It is true that the debate on languages is more political and social than it is cultural and educational. It must also be recognized that the dichotomy in society is not only economic but also, very often, linguistic, and it is perhaps for these reasons that the policy of promoting national languages is running into difficulties which are not only pedagogical in nature.

The inter-action of education and the mass media

71. In view of the growing importance of the mass media in contemporary society, the inter-action of those media with education has become and will continue to be a major issue. In many countries, the mass media constitute a kind of "parallel school" which operates according to different principles than apply to the formal educational system. Whereas the latter bases its action on the values of order and method, perseverance and application, the mass media generally give precedence to topical matters of momentary interest at the expense of issues of abiding importance and sometimes highlight violence.

72. There is thus overt or covert competition between the school and the media, both as regards the messages they convey and the pedagogical approach employed. Despite the disorganization and passing timeliness of the information conveyed through effortless "packages" by the mass media, its impact on attitudes and awareness is significant and cannot be ignored by educators. This is all the more important in countries where the majority receives what little education and information it can through the mass media alone.

73. The future of education will certainly be influenced to a large extent by the interaction, whether coordinated or otherwise, between education and the mass media. The main question is what co-ordinating policy will governments adopt ? A real attempt to integrate education and the media within a harmonious educational policy would obviously call for the preparation of teachers for new media-related tasks and require a genuine responsiveness to the problems and needs of education on the part of those responsible for the mass media.

Education and social development

74. Educators in probably all countries are faced occasionally, if not frequently, with problems arising from social discord, which often manifest themselves in contemporary society in the form of violence and drug abuse, or in their apparent antithesis, the sometimes naive quest for new forms of community life and religious belief. They must also deal with the frustation felt by groups which are geographically, socially or politically excluded from the mainstream of national life ; with the effects of the breakdown of family and community bonds ; and with the increasing loneliness of individuals caught up in impersonal forces they do not understand. Not least among these problems is the anxiety which young people feel over spreading unemployment and the indignation and even rebelliousness they sometimes demonstrate when aware of injustices and social inequalities.

75. Some educational systems attach considerable importance to civic and moral education in order to prepare the younger generation for its social responsibilities, but there are other educational systems which give little attention to this aspect. In certain countries there is currently a debate on whether or not the public school system is the appropriate place for moral education and if so, what improvements may be required in the content and methods of teaching, as well as in the preparation of teachers.

76. Another dimension of this issue is the role of education in promoting international understanding peace and human rights. Despite the considerable progress observed in this regard, there are still many cases of prejudices and stereotypes being reinforced, perhaps unintentionally, in textbooks and in the organization of courses and schools. Yet, there is good reason to believe that with the growing worldwide awareness and concern about major socio-political issues affecting all mankind, it will become imperative for educators in all countries to find more effective ways to educate children and adults in respect to such issues as world peace, disarmament, human rights, inter-dependence of nations, protection of the biosphere, etc.

C. Efficiency

77. The vast expansion of education and concern for educational quality have led to major management problems, complicated further in many countries by the need to restructure the whole education system. An important constraint felt by a great number of countries, particularly in very recent years, is the difficulty of mobilizing adequate funds for education. In these circumstances it is obviously essential to make the best possible use of available resources. Of course planners and policy-makers have been concerned for years with improving the internal efficiency of educational systems and in particular to reduce or eliminate educational "wastage" which results from high rates of grade repetition and school drop-outs.

78. Another dimension of this issue is the external efficiency of the educational system, which is measured by the quality of the pupils and students it graduates. If this "output" of the schools, universities, and non-formal programmes, possesses the attitudes, knowledge and skills needed by society and the economy, the system is considered efficient in this external sense. Obviously, the external efficiency of education is closely linked to its relevance to national development, as discussed previously.

Internal efficiency

79. Probably the most obvious symptom of an educational system's inefficiency is the number of pupils who repeat grades or who drop out of school. For some years attention has been drawn to the high repetition and drop-out rates in developing countries. Although the problem is serious at all levels of education, it is especially so at primary level, where it contributes to gross inequality of educational opportunity. A study covering 54 developing countries showed that nearly 50 % of the pupils entering school in 1970 did not reach the fourth grade, generally considered the minimum level to sustain literacy. Other studies have shown that the majority of pupils who repeat or drop-out come from disadvantaged socio-economic backgrounds, and that the repetition and drop-out rates are significantly higher in rural areas and among girls. The financial loss or cost of this educational "wastage" is believed to be considerable ; a study in one country estimated the additional cost for public primary education to be around 50 %. However, the cost of educational wastage cannot be measured in financial terms alone. The social costs may well prove more significant in hindering a country's development.

80. Less evident, but also costly in social and economic terms, is the problem of under-achievement of pupils and students who remain in the educational system. The causes of under-achievement are often related to poverty, such as poor nutrition or the obligation to work after school hours. Other causes are school-related such as poor teaching, inappropriate curricula, and the lack of adequate books and teaching equipment. School leavers and university graduates with an inadequate preparation for life and work, certificates and diplomas notwithstanding, are hardly an asset to themselves nor to society, and serve as an indictment of the educational system's inefficiency.

81. Many countries have taken measures to upgrade teachers in service and to improve pre-service training, as a step toward solving the problems of wastage and under-achievement by improving the efficiency and effectiveness of instruction. Less attention seems to have been given to possibilities of improving quality through changing the "mix" of teachers (who generally account for 80 % or more of all recurrent expenditure on education), educational technology, and learning materials.

82. Many countries are also weighing the cost effectiveness of a number of alternatives when allocating funds to the various levels of education. It is well known, for example, that the per capita cost of secondary education is several times that of primary education, and the per capita cost of higher education may be even 10 times greater than for primary education in some countries. When funding for education is limited and social demand for education is growing, one can hardly avoid the question whether a university graduate can really contribute as much to society and the economy as could 50 or 100 primary school leavers, quite apart from the moral question of social justice.

83. The design, construction, maintenance and use of physical facilities for educational purposes constitutes another area where considerable improvements in efficiency have been reported in a number of countries. The intensive utilization of buildings, whatever their costs, presents one of the greatest opportunities for resource conservation. There is really no reason why buildings should not be occupied throughout the entire year by imaginative scheduling of school terms and non-formal programmes for youth and adults, as the experience of many countries demonstrates. Such utilization of buildings could sharply reduce the need for new construction. However, the need for additional facilities to accommodate expanding enrolments will continue to be felt. Some countries are seeking to reduce the cost of new construction through endogenous architecture which, by using locally available materials and skills, makes it possible for communities to participate actively in school design and construction and thus develop a capacity for self reliance.

84. The key to improving the efficiency of educational systems probably lies in the first instance with the decision-makers, planners and administrators. Many countries expect some economies and improvement in efficiency from recent measures aiming at a better balance and deconcentration of authority among different levels of the administration and the involvement of communities in the planning and management of schools and educational programmes in a spirit of self reliance. Although nearly all countries have some kind of educational planning unit, the functioning of these units is still hampered in many countries by lack of adequate statistics and evaluation of plan implementation. There is also a widely felt need to develop innovative and flexible managerial capabilities to ensure the optimum utilization of resources available to the education system, at the central, intermediate and school levels.

85. Numerous measures have been tried, with varying success, to improve the internal efficiency of educational systems. Among the questions posed in this regard are the following : To what extent can educational wastage be reduced by improving the qualifications of teachers ? Are expensive media-based systems more effective and cost-efficient in the long-run than a large-scale programme to upgrade the qualification of teachers ? Can significant economies be realized by changing the duration of the academic year ? Is automatic promotion from one grade to another pedagogically sound and cost-efficient ? Can out-of-school programmes reach certain less favoured population groups, such as the rural and urban poor, more effectively than an extension of primary schooling ?

External efficiency

86. The external efficiency of an education system is determined today first of all by its ability to produce the kinds of skilled manpower required by the economy. This is not to say that education is considered merely a preparation for employment ; of course it should prepare pupils for all aspects of adult life, including the world of work. However, many educational systems, with their elitist vestiges and preoccupation with selection and screening functions, are isolated from the larger social, cultural and development goals of society. Nowhere is this isolation so apparent as in the failure of education to provide children and youth with an active comprehension of the world of work. Educators have long deplored the incompleteness and artificiality of a general education which disregards a whole side of human experience.

87. In response to this problem, some countries have sought to make education more generally useful by introducing productive work into the educational process, and others by institutionalizing alternation between periods of study and periods of employment in a productive activity. Productive work, regarded as one strand in general culture, could be a crucial factor in preparation for employment and for increased occupational mobility, as was stressed recently by several regional conferences of Ministers of Education. However, the true purpose of work in school is to foster a positive attitude towards all forms of human creative endeavour, to remedy the intellectualism and verbalism resulting from educational practices that are often too bookish, to close the gap between the acquisition of knowledge and its application, and, finally, to reveal the pupils' interests and abilities and thus provide valuable guidance. Of course, many questions may be raised in this connection. How, for example, can the requirements of the curricula be harmonized with the constraints of productive work ? At what level should education through productive work be introduced ? How much of the timetable should be devoted to it ? What types of productive or socially useful work, and what methods of organization, will enable it to perform in education the beneficial function that is expected of it ?

88. A related problem area is professional and vocational training. In recent years, numerous new schemes have been tried out and new institutions established at the post-primary levels to provide growing numbers of pupils and students with essential job skills or professional training. Often the courses offered contain little or no general education component, which raises the question how much specialization is desirable and at what level in the system ? What kind of training is most suitable for a world of work in rapid transformation ?

89. Another approach to vocational training and upgrading of skills adopted by many countries involves out-of-school programmes. In some cases these are organized and financed by the education authorities, but many are organized by other government departments, such as the ministries of labour and agriculture, and still other programmes are run by economic enterprises. The latter tend to emphasize on-the-job training and retraining, and many non-formal programmes cater to adult workers as well as to young people. The proliferation of these kinds of programmes in some countries poses a problem of coordination between the education and training offered in the formal system and outside.

90. The problem of relating education and employment is a major preoccupation in nearly all countries today. While high levels of unemployment, particularly among youth, cannot be attributed merely to a mismatch between the training provided by the education system and the job openings offered by the economy, it appears essential to identify the causes in the present mismatch which are transcient in nature and those which are of a more lasting character. Some countries are attempting to devise solutions in regard both to education and to employment. This compound problem thus concerns socio-economic policies as well as education and employment planning. Could a fresh distribution of manpower among the various economic sub-sectors and a readjustment of working and leisure time be part of the solution ?

91. An important aspect of this problem in many countries is the "depreciation" of academic qualifications, combined both with the increase in the number of diploma holders and with the falling off in the number of jobs available. But why are employers expecting higher qualifications ? How far - and in what cases - is this due to the ratio between the number of qualified individuals and the number of jobs available, or to changes in job profiles which necessitate more knowledge ? This trend may well be due, firstly, to the greater efficiency in performance expected as a result of better training and a higher level of education and, secondly, to the fact that employees need increasingly extensive general knowledge, over and above mastery of a special field, in order to cope with the growing complexity of professional life and of society in general.

92. While the capacity of education systems to train senior personnel often exceeds the capacity of the modern sector of the economy to employ them, the fact remains that in many countries a fundamental task of education is to train senior personnel for sectors still lacking qualified staff. There is also scope for more educational action in support of agriculture, the economic sector in which millions of families in the Third World make their living. Certain studies show that the productivity of farmers increases significantly in relation to the number of years spent in the primary school. Many countries have neglected this aspect by giving excessive priority to the training of personnel for the modern sector, thereby allocating a disproportionate share of resources to post-secondary education. Are governments with large agricultural economies likely to reverse this phenomena ?

93. Finally, it should be noted that more and more governments are judging the external efficiency of their educational system also with regard to its contribution to scientific research. University reforms designed to associate research and higher education in science and technology have borne fruit and have also favoured the freedom of movement between theoretical and practical scientific occupations. This is an area where once again there is an enormous gap between the developed and developing countries, the former employing over 90 % of the scientists and engineers engaged in research and development, according to a recent study. Can this gap be reduced significantly through educational action in the developing countries ?

III. FACTORS AFFECTING THE DEVELOPMENT OF EDUCATION

94. The problems discussed in the previous section will certainly influence the course of educational development over the next two decades and probably longer. However, the nature, magnitude, and possible solutions of these problems are conditioned to a very large extent by factors which are largely outside the direct influence of education authorities. It is the interaction of these factors with education, combined with the decisions and actions of governments and, to a lesser extent, of other social institutions, which will determine the course of educational development. This section will sketch what appear to be the major factors affecting education.

Demography

95. The basic reality for any educational system is the number of actual and potential learners. Cautious estimates of population growth indicate that the world population will increase by about 77 % between 1970 and 2000. The increase will be very unevenly spread among the major regions, ranging from 11 % in North America to 137 % in Africa. The total population of the developing countries will double. According to one study, 62 % of children in the 6-11 age group were enrolled in primary school in the developing countries in 1975 ; merely to maintain that same proportion in 2000 would require an increase of absolute numbers by 73 %, whereas the developed countries would need to increase primary school enrolments by only 9 % to maintain the same enrolment ratio (94 %) as in 1975. Other forecasts indicate that in 1975 the total number of pupils at all levels of education in the developing countries was about 346 million ; assuming the same enrolment ratios, the total enrolment will reach 763 million by the year 2000.

96. Overall population growth figures tell only part of the story. In the developed countries, low and declining birth rates have led to a reduction in the school age population, while gains in life expectancy have contributed to a general "aging" of the total population. Some countries already report a significant demand for educational services for their senior citizens, as well as an aging of their corps of teachers. However, in the developing countries, the gradual reduction of infant mortality rates has more than offset the effects of recent gains in reducing the high birth rates, resulting in a steady "rejuvenation" of the population. In 1975, the 0-24 age group constituted nearly 60 % of the total population of the developing countries : 63.1 % in Africa, 61.5 % in Latin America, and 57.5 % in Asia, compared to 42 % in the developed countries. Such an age pyramid means that a relatively small, economically active adult population must generate even increasing income to support a growing number of children and to pay for an expanding educational system.

97. Another important demographic phenomenon observed in very many countries is the population migration from rural areas to the towns and cities. The industrialized countries, which are already highly urbanized, will have between 80 to 90 % of their population in cities by the end of the century, but the developing countries will probably be even more affected by this population shift to the cities. By 1990, for example, it is estimated that about 70 % of the population of Latin America will live in urban areas. This "rural exodus" is contributing to the rapid urbanization of developing countries characterized frequently by overcrowded slums and shanty-towns, environmental pollution, labour-market distortions, social and cultural dislocation and the inadequacy of essential services, including schools. Yet, in spite of the migration to towns and cities, the rural population in many developing countries continues to grow in absolute terms. These trends are obviously important for education in the future, particularly with regard to the spatial distribution of educational services.

The economy

98. Today there is a better understanding of how education and economics influence each other, how the development of one depends to a great extent on the development of the other. In simple terms, the economy makes available the necessary resources for the education system and provides employment to school leavers and graduates, while education prepares the necessary manpower and contributes to basic research, which is fundamental for technological development and economic growth.

99. The recent increases in energy prices and the economic "stagflation" experienced by many countries are now regarded as more than temporary phenomena. Forecasts concerning economic growth in the 1980's are, for many countries, more pessimistic than in the 1960s. Despite differing conditions and prospects in each country, growth rates generally will most probably be slower than in the past. Such a slowdown in economic growth would compromise efforts to eliminate or reduce poverty and restrict funds for education. This situation is already affecting public and private expenditure on education and may well become a serious constraint on educational development, particularly for the developing countries. If democratization of education is to continue as a guiding principle, serious efforts will be required to reduce the unit cost of education at all levels and to mobilize new sources of funding.

100. Another economic phenomenon is the gradual spread of industrialization, on which so many developing countries have pinned their hopes. While the pace of industrialization will be affected by the duration and gravity of the current stagnation of the world economy, it appears to be an irreversible force which will transform societies and create new conditions and demands to be met by educational systems.

101. A parallel phenomenon in the more developed countries is the continuing growth of the services sub-sector and the consequent relative decline in the proportion of the labour force employed in industry. It is not yet clear whether this is a trend which will continue even to the end of this century, but at least for the immediate future, most pupils and students in these countries will need to be prepared for employment in the services sub-sector.

102. In any case the problem of employment itself will certainly continue to preoccupy most governments for years to come. Economic recession has reduced the capacity of most economies to provide new employment, in particular for young and often highly educated people. Rising unemployment of youth has thus become a major issue in many countries, as previously discussed, and it has been found that a mere increase of vocational training or a certain vocationalization of general education is no guarantee against unemployment and is certainly no remedy.

103. However, unemployment and under-employment are due not only to the current economic recession. Technological advances have reduced the need for manpower in all sub-sectors of the economy, even in the services, but particularly in agriculture and industry, and have contributed to the downgrading of the content of some jobs while increasing the skill requirements for others. The effects of structural unemployment are unlikely to be offset by increases in the number of salaried jobs, even in rapidly developing countries, since the rate of job increase is normally slower than the rate of economic growth. Educational systems will be expected to respond quickly to these new manpower requirements, to provide training in new skills, and to prepare men and women to adapt to ever-changing occupational situations.

104. The expected increase in world population over the next 20 years, referred to earlier, combined with slow economic growth, will probably give rise to considerable problems in relation to food supplies, raw materials, and particularly to energy supplies. There certainly will be shortages of these vital economic factors in different parts of the world. These will be due less to resource depletion than to problems of physical availability and socio-economic constraints, as now underlie the present energy crisis. Apart from the economic consequences of such shortages, education will probably be obliged to give even more attention than it now does to ecological ethics and to developing an awareness and understanding of ecological problems.

Science and technology

105. Accelerated scientific and technological progress is reshaping societies across the planet, but in most cases the impact of this progress on the economic, social and cultural spheres is suffered passively, rather than planned in accordance with national development policy. A study prepared for the United Nations Conference on Science and Technology for Development (Vienna, 1979) states :

> The potential contribution of science and technology to development objectives is widely recognized. Scientific and technological knowledge has contributed, perhaps more than any other factor, to the economic growth of developed countries - the conquest of disease, the improvement of productivity, the creation of new materials and, in general, the possibility of transcending the limitations of nature. At the same time, however, modern science and technology have been found to be at the root of the present inequitable division of labour that concentrates productive activities with high scientific and technological content in a few developed countries. Most developing countries still employ traditional productive methods and are passive recipients of innovations originating in the developed countries. (...)

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106. The growing awareness of the fundamental importance of science and technology for the development of a society has focussed attention on the urgent need for developing countries to build and reinforce their own endogenous scientific and technological potential. No matter how modest it might appear at the outset, this potential may well prove the key factor in their economic development, enabling them to understand their particular national needs and to select and adapt or develop appropriate technological solutions.

107. The establishment of an endogeneous technological infrastructure has important implications for education. The harmonious development of science and technology depends basically on the availability of qualified manpower in these fields, and the provision of that manpower is the responsibility of the education system. This will require an enormous effort by the developing countries in the years to come.

108. It is clear that progress in science and technology will have a growing impact on education in the developed countries as well. There, too, education plays a role in the further development of science and technology, not so much in applied research, which generally takes place in specialized institutes and in large industrial enterprises, but more in fundamental research at the universities. Students and researchers in the social sciences are also increasingly concerned with the effects of technological change on society and its institutions. In some countries, a dialogue between natural and social scientists has begun over the application of technology for the general development of society.

109. Perhaps a more important impact on the education systems of the developed countries will be the changes in their "output". The number of graduates continuing in research work is growing. The number of scientists has been doubling at an increasing pace, which in certain countries is presently every seven years. However, it is not merely a matter of numbers. Scientific knowledge is expanding so rapidly that curricula need to be updated constantly and graduates must continuously keep abreast of new theories and discoveries. A change of attitude regarding rapid technological progress is needed not only among higher education graduates, but also among technicians at lower levels and among personnel in certain occupations where highly sophisticated production equipment requires specialized knowledge and adaptability to technological improvements.

110. The final third of the twentieth century appears to be the dawn of a new technological era characterized by the spreading application of atomic energy, electronics, telecommunication, computers, automation, and cybernetics -- all of which have or will have an impact on education. Computers, for example, are already used in many countries as learning aids, with one computer providing individualized instruction simultaneously to hundreds of students. If the cost of computers continues to decrease, their use will probably spread to more countries and to all levels of education. In the future, computers will also certainly be utilized more in the management of educational systems and institutions.

111. Similarly, recent innovations in telecommunications and electronics have opened up new possibilities for education, notably for distance learning programmes. The potential use of transistorized radio and television sets has hardly begun to be exploited. Communication satellites have been tested for educational purposes and will probably be used more extensively in the future. The growing influence of the mass media will probably hasten the use of these same media for educational purposes in many countries.

112. Progress in science has not been limited to the natural sciences. The social sciences, too, have developed rapidly since the 1960s and are increasingly looked to for explanations and solutions for various social problems. Today the study of complex social phenomena is characterized, on one hand, by growing specialization, and, on the other, by a more interdisciplinary, holistic approach.

113. Progress in the social sciences has also brought certain methodological problems to the surface, such as understanding and communicating across cultural frontiers, measuring social phenomena, determining in advance the effects of an intervention in a social system. Some countries seem not yet to recognize the importance of this progress in social sciences. However, education systems in other countries are adapting their curricula and teaching methods to this new situation and are seeking to provide all pupils with at least a minimum knowledge of the social sciences, while training specialists in economics, political science, sociology, anthropology, etc. in sufficient numbers.

Environmental factors

114. The development of contemporary industrial society differs from earlier societies by the rapid and far-reaching changes it has inflicted on the physical environment. These changes, due to the effort to satisfy man's multiple and insatiable needs and to rapid population growth, have led to widespread environmental pollution and serious shortages of certain natural resources. The universal character of these problems concerns all countries, regardless of their level of material development, and has stimulated fresh thinking about the philosophical and ethical foundations of man's relations to nature. This in turn has modified economic development strategies, which are no longer considered acceptable if they harm the natural environment.

115. This new "ecological ethic" is of major importance for education, but its response up to now appears inadequate. No doubt in the years to come, far more attention will be given to this factor, and ecological considerations will be given a key place in the educational process in order that everyone will have a basic understanding of the complexity of the biosphere and be prepared to support actions designed to protect and manage it.

116. A distinct but related aspect is the increasing development of artificial environments, particularly in large cities. These mini-environments with their artificial illumination, air-conditioning and heating vertical and horizontal transportation (elevators, escalators, moving sidewalks, subway trains), etc., consume great quantities of energy and resources and also contribute to environmental pollution. This new kind of environment and the negative side effects of urbanization, such as urban sprawl, traffic congestion, overcrowding,

and various kinds of pollution are generating changes in the behaviour and values of urban men and women. These changes, too, are inevitably affecting education and their impact can only grow in the future as the process of urbanization, as discussed earlier, spreads throughout the world.

Social and cultural factors

117. Interlinked with demographic, economic, technological and ecological factors are a whole complex of social and cultural factors peculiar to each society. They interact intensely with education, using it as a vehicle for their replication and continuation, and are shaped in turn by it. World views, value systems, religious beliefs, and behaviour patterns could be given as examples. Although it is difficult to identify the major factors of this group which will influence education on a world scale between now and 2000, some will be mentioned here by way of illustration.

118. One of the unfortunate realities of the future is that great numbers of human beings will continue to live in materially poor circumstances. According to one estimate, in the year 2000 the number of desperately poor people in the world (with annual incomes below $ 300) will total about 1,650,000,000 -- i.e. nearly 30 % of the world population. Poverty is more than an economic fact ; it is a negative social condition often characterized by poor nutrition, poor health, short life spans, fear, hopelessness, etc. Education will need to respond also to the special needs of these people in the years ahead.

119. The social force of democratization will certainly continue, perhaps accelerate, in the years ahead. There may be temporary setbacks in certain countries to the assertion of equal rights by disadvantaged groups, including women, but there is every reason to believe that the move toward equality of opportunity will continue forward in the long run. If so, education authorities will have to expect further social pressure for equality of access to and achievement in education.

120. Another factor of importance is the growing awareness and affirmation of cultural identity of whole nations and of minority groups within a country. This trend is already affecting the content of education in many countries and has drawn fresh attention to the issue of providing instruction in the mother tongue. If this trend does not run counter to the use of the major languages of communication and to the importance of universal values, it may reinforce considerably the cultural component of education and improve its quality and effectiveness.

121. Educators in all countries are aware of the crucial importance of the family to personal development and educational achievement. Societies undergoing rapid evolution, such as those embarking on industrialization, are experiencing certain strains on traditional family life, for example the fragmentation of the extended family. The broken homes and one-parent families now so common in some industrialized countries may become common features also in the newly industrialized countries by the year 2000, unless other factors, such as religion, maintain a certain stability in family patterns.

122. Leisure time and recreation are now important aspects of life in the countries of the more developed regions. If current trends continue, they will probably become even more important in the future because the work week will be drastically reduced as a result of increased productivity and technological progress, vacations will become longer, and the retirement age will continue to be lowered, though people will have longer active life-spans. The end result may be that leisure and recreation and the values surrounding them will replace work and the "work ethic" as the central reality of human life. If this forecast proves accurate, the implications of increased leisure may be very far-reaching for education.

Political factors

123. For educational plans and reforms to be carried out successfully, one of the preconditions is adequate political commitment and institutional stability. In some countries, political instability has led to political violence and terrorism, whose negative effects on education are similar to those of social disharmony. Whether or not political stability will increase or decline in the near future is anyone's guess, but the recent record in many parts of the world is not encouraging.

124. More encouraging, however, is the attempt being made in many countries to involve people at the local level in decisions which affect their community, including the local school system. Of course a few countries have a long tradition of direct citizen participation in local school districts. It is far from clear whether this practice will become a major factor on the world level in the political control of education, or be overriden by the much-documented worldwide trend of increasing bureaucracy.

International relations

125. The impact on education of certain economic and social forces already mentioned may be aggravated or mitigated by political decisions and actions taken at international level. It is evident, for instance, that the prospects for national development in all countries depend to a large extent on the state of the world economy and on trade relations between countries. While international economic competition seems to have heightened in recent years, often to the detriment of developing countries, modest gains have been achieved in eliminating trade barriers through GATT and UNCTAD. Regional economic groupings of countries, such as the Andean Pact, the Association of Southeast Asian Nations (ASEAN), the Council for Mutual Economic Assistance (CMEA), and the European Economic Community (EEC), will certainly continue to develop and generate new economic, social and cultural realities, if not some degree of political integration, all of which will have major implications for education.

126. Important for educational development, also, are the on-going efforts of governments to settle their differences peacefully and to achieve detente through improved relations of various kinds. Education is believed to have an important role to play in this process. If the process of detente were to lead to disarmament or even of a halt in the arms race, education in many countries might benefit from the resources that would become available. Conversely, education would be grossly affected if there were to be a major breakdown in the peace-building process.

127. Finally, the improvement or degradation of relations between countries will depend to a considerable extent on the progress made toward the establishment of the new international economic order. Implicit in the concept of the NIEO is a more equitable redistribution of income between the developed and the developing countries as well as among population groups within each country. All of the UN system's efforts to promote development will be directed to this end. The contribution of Unesco and its Member States, largely through increased international cooperation in education, but also in the sciences, culture and communications, will be an important factor in this effort which will indirectly affect the future development of education.

IV. ORIENTATIONS FOR REFLECTING ON THE FUTURE OF EDUCATION

128. The various trends, issues and factors outlined in the preceding chapters do not, of course, constitute an exhaustive list. The participants may wish to supplement this list and to assign more relative importance to certain aspects, particularly in relation to a given country or group of countries. Once these essential elements for reflection have been clarified, their interactions and consequences for education over the next twenty years may be explored.

129. It should perhaps be recalled at this point that the purpose of this exercise is to discern the probable paths of educational development, that is, the most likely from among the many possible paths. In other words, the Panel is expected to make an objective inquiry into the prospects for the development of education during the coming two decades and to identify those factos which will affect that development.

130. In the course of the discussion, Panel members are invited to express their opinion on the following interrelated points to help the Secretariat in the preparation of a report on the future development of education :

i) Which trends evident in education today are likely to continue over at least the next 20 years ? Of these, which will probable prove most significant ? What new trends may arise ?

ii) Which current issues or problems in education will continue to preoccupy educators and decision-makers in the future ? Which problems, if any, will decline and which will increase in importance ? What new problems might be expected to arise ?

iii) Which factors will have the most impact on education over the coming two decades ?

iv) What are likely to be the dominant tendencies or educational policy orientations through the year 2000 ? Will democratization continue to be a major force for educational change ? If so will the concept of democratization be extented beyond equal access and equal chance for achievement ?

v) What will be the most significant features of education - in terms of structure and organization, of content, of the teaching/learning process - ten years from now ? twenty years from now ?

vi) Which themes should be developed in more depth in the report of this prospective exercise ?

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~~126~~. In order to stimulate discussion on the above points, the participants may wish to consider also a number of specific predictions and observations about the evolution of education. The points which follow are drawn from a quick selection of current literature, which may not be representative of all currents of thought, and which does not necessarily represent the views of Unesco. Some may appear optimistic or pessimistic, particularly when presented outside their original context, and several are obviously contradictory.

Predictions and observations concerning the general orientation and structure of education

- Will the quantitative expansion of education continue to be a dominant characteristic of the evolution of education over the next two decades ? What are the limits of this expansion ? One observer states that in Europe, by the year 2000, there will be :

> ... more teachers than farmers (more people providing education to the population of Europe than producing its food); that the school population and teachers will constitute around 25 % of the total population ; "that one person in three of the European population will be occupied with educational activities". (Bertaux, 1976, citing Tinbergen's prediction) (1)

- One particularly alarming and complex challenge for the future of education is the elimination of illiteracy. An enormous and systematic effort would be required, involving national leaders, planners, educators, technicians and representatives of various sub-sectors of society, particularly mass organizations and, insofar as possible, illiterates themselves. Is such an effort feasible ? Is it likely to be undertaken ? Unesco's position could be summarized as follows :

> The eradication of illiteracy before the end of this century is possible in theory if account is taken of the resources at mankind's disposal. For this aim to become a reality depends mainly on the determination of governments, the depth of their commitment vis-à-vis the problem and the extent to which they will mobilize their human and material resources. (Thinking Ahead, 1977) (2).

- Is there likely to be a radical change in the nature of education ? Will educational authorities accept that "the very principle of the school system needs to be rethought" ; particularly in view of the growing awareness of the "instinct for play ... (which) ... in its turn, in the final decades of this century, will come to the fore to be accepted, recognized, and studied". (Bertaux, 1976) (3). Similarly, the authors of the second report to the Club of Rome call for "a new kind of education ; an education geared to the twenty-first century rather than the twentieth or nineteenth centuries". (Mesarovic and Pestel, 1974) (4). The more recent report to the Club of Rome, No Limits to Learning, advocates a shift from "maintenance learning" to "innovative learning" in order to bridge the "human gap ... between a growing complexity of our own making and a lagging development of our own capacities". (Botkin, Elmandjra, and Malitza, 1979) (5).

- Another vein of thought emphasizes the continuity of current trends. For example, one author predicts that "education systems will become more coherent, but also more complex and therefore more unwieldy". The expansion of these systems "will make them still more inert and more resistant to change than they already are". The same author, in discussing the particular problems of the developing countries, observes that "it would seem impossible that those countries' educational problems can ever be solved by the traditional forms of academic teaching which were invented in Europe, mainly in the nineteenth century". He goes on to predict : "Presumably, the most remarkable educational innovations in the future will appear in the 'young' developing countries". (Hummel, 1977) (6).

- How seriously should be taken the proposals deriving from various world models, such as the Latin American model of the Bariloche Foundation, which advocates four minimal levels of education to be assured :

1) initial basic education for children, lasting 8 to 12 years ;

2) middle and higher levels of education to train a critical mass of middle-level and senior personnel, the immediate aim being to train 7 % and 2 % of the population respectively at these two levels :

3) continuing education for all adults between the ages of 20 and 50, comprising 30 modules, each requiring 6 weeks of full-time instruction ; and

4) compensatory instruction for adults who did not receive an adequate initial basic education. (Herrera, 1977) (7).

- There seems to be a widespread consensus that out-of-school (non-formal) education will continue to expand and become increasingly important in the next decades. If so, this may well aggravate the problem of coordinating the various kinds and levels of education existing within and outside the formal education system. One possible solution might be the "educational and cultural district" which is proposed to regroup and harmonize the activities of the various institutions which provide educational services in a fairly compact geographical area (Schwartz, 1972) (8). Another approach is described as follows :

> A much larger clientele than before (due particularly to the inclusion of adults in the educational sector), the explosion of non-traditional and informal education, as well as the heterogeneity of the needs which must be satisfied by a system of lifelong education, require a considerable extension of services. ... This new educational complex will progressively integrate its diverse components by the establishment of reciprocal and regular relations. The stable links between these groups of services will lead to the creation of systems, which will link together in turn and lead to the appearance of a macrosystem of education. (Herrera, 1977) (9).

- Most, if not all, forecasts about the future of education implicitly or explicity assume that the trend toward life-long education will continue. Several authors predict that by the year 2000, life-long education will be institutionalized in many countries, and in the developed countries, facilities and programmes will be available to everyone, of any age, at a reasonable cost to the individual.

- With regard to the financing of education, there seems to be general agreement that funding sources in the future will be even more varied than today. Some authors write of serious financial difficulties ahead, of slower growth rates or even of a levelling off of funding for education. However, one view considers the distribution and use of funds to be more important than the volume of funding alone :

> The solution of these problems does not depend exclusively on increasing material sacrifice, necessary though it may be, but more on a judicious distribution of effort and means, on more judicious budgetary choices, on a less traditional, more realistic and innovative organization of educational activities. (Schwartz, 1972) (10).

Predictions and observations concerning higher education

- The evolution of higher education is the subject of numerous predictions and proposals. One author foresees :

> The democratization of education will add still further to the pressure on education at the higher levels. There is a danger that the difficulties and tensions caused by this pressure - unemployment among university graduates, numerus clausus, etc. - will become more serious. (Hummel, 1977) (11).

This same concern prompts another author, while discussing measures to resolve education - employment problems in Asia, to propose the "painful future task of cutting back on higher education full-time enrolments so that the numbers of general arts and science graduates are reduced in the coming two decades..." (Adiseshiah, 1980) (12).

- For others, the role and structure of higher education is due for change :

> Some reorganization of academic and administrative structures should be reconsidered (sic) to combine university departments according to issues rather than only and always according to disciplines.

And :

> ... a major effort should be made to restore balance between action and reflection by involving both public and private universities more directly in the evolution of society through research contracts and development projects. (Botkin, Elmandjra, and Malitza, 1979) (13).

- Another viewpoint emphasizes the needs of the individual, which can be better met by replacing the traditional university with "self-service education systems where anyone, at any age and for any purpose whatsoever, could obtain the knowledge which he needs or desires at that particular moment." (Bertaux, 1976) (14). Some observers foresee the gradual disappearance of the residential university, but the reserve trend toward more large university establishments is also predicted by others.

Predictions and observations concerning the content of education

- Changes in the content of education are perhaps less predictable than other aspects of education, which may explain why forecasts on this subject tend to be of a general nature. For example, the implications of democratization are summarized in this regard by one author thus :

> It may be assumed that the idea of equality will be developed still further and in greater detail. This will be encouraged by the strong trends towards individualized instruction. Equality no longer means the 'same education for all', but the 'best education for everyone'. (Hummel, 1977) (15).

- Many authors draw attention to one of the most important aspects of educational content, the relationship of general and vocational education, as for instance :

> Educational action ... should aim less at training young people to practise a given trade or profession than at equipping them to adapt themselves to a variety of jobs, at developing their capacities continuously, in order to keep pace with developing production methods and working conditions. It should help achieve optimum mobility in employment and facilitate conversion from one profession or branch of a profession to another. (Learning to be, 1972) (16).

Or :

> The distinction between general and vocational education will gradually disappear, since the ability to adjust to change will become more important than the possession of specific knowledge or know-how. (Hummel, 1977) (17).

- Another approach focusses on the general responsibility of education to prepare pupils for the future :

> ... education will considerably reduce its function of 'guardian of history' -- protector and supporter of the existing order -- and will try above all to provide a preparation for a desired future. (Herrera, 1977) (18).

- Probably no author in recent years writing on this subject has neglected to mention that further reductions in working hours and in the retirement age will lead to increased leisure time by the end of the century in many countries ; thus a significant share of adult life may be spent in educational pursuits. Compulsory education will then need to include more elements to prepare people for leisure, while post-compulsory educational programmes will be designed to meet the demand for training and guidance in a wide range of subjects, many of them being non-academic in nature.

Predictions and observations concerning the teaching-learning process

- Many observers foresee significant changes ahead in the role of the teacher. Some predict that the student will assume more responsibility for his or her own education and will have access to a wider range of instructors and counselors, many of whom will be non-professional teachers. With the wider application of educational technology for self-learning and group learning, "the role of the teacher is transformed into the role of an expert guide whose main function is to aid people to learn to educate themselves". (Herrera, 1977) (19).

- Often predictions in this area emphasize sophisticated equipment which could be introduced into and change the learning process. One author outlines a number of existing instructional technologies which could be used on a large scale to reduce the unit-cost of education as well as inequalities in educational opportunity :

1) learning through home television programmes ;
2) self-instruction using portable computer/calculators ;
3) group interactive instruction using cable television connected to a large central computer ;
4) self-instruction using video-discs coupled to an interactive micro-computer ;
5) learning assistance based on computer services such as "electronic mail", data processing, bibliographical searches, etc. (Dede, 1979) (20).

- The interaction of education and the mass media is frequently discussed in this connection. Many authors predict that in coming years formal education will find itself increasingly in competition with the mass media, and some feel that governments will (or should) attempt to control or encourage the use of the media for educational purposes : "Where necessary, some codes of conduct might be developed to improve the integrity of learning and educational components of media programming." (Botkin, Elmandjra, and Malitza, 1979) (21).

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REFLECTION ON THE FUTURE DEVELOPMENT OF EDUCATION

Meeting of the International Panel

Paris, 17-21 November 1980

2. FINAL REPORT

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INTRODUCTION

1. In accordance with the Programme and Budget approved by the Twentieth General Conference of Unesco, an International Panel on the Future Development of Education met in Paris from 17 to 21 November 1980, upon the convocation of the Director-General of Unesco, "to identify significant trends in the development of education in the world, to determine the factors likely to influence this development in the course of the next twenty years, and to identify the main topics to be covered by special studies".

2. The Panel was composed of sixteen eminent personalities in the fields of education, science and culture, selected from sixteen countries which, together, constitute a broad cross-section of the major regions of the world. Fourteen observers participated in the meeting, including representatives of the United Nations and Unicef, the International Labour Organization, the World Health Organization and the Arab Educational, Cultural and Scientific Organization. See the list of participants in Annex II.

3. At the opening session, the Assistant Director-General for Education, speaking on behalf of the Director-General, welcomed the participants to Unesco Headquarters and explained the importance Unesco attaches to the programme activity entitled "Reflection on the Future Development of Education". He emphasized that this programme corresponds to the needs of the international community as a whole. The year 2000, which will open a new century and a new millenium of unknown prospects, is in fact very close. Education, which reflects the fundamental realities and constraints of society whilst at the same time determining to a large extent its future, must be prepared as from now to meet imminent new requirements, and it is not too early to foresee its progress over the next 20 years. The citizen of the 21st century is entering school today, and the educators trained today are those who will teach children who are not yet born and who will only enter adult life in the next century. A prospective reflection in the field of education is possibly more indispensable than in any other field of human activity, and the horizon assigned to this study, that of the year 2000, seems to be reasonable and to correspond to the period for which it is already urgent to explore the prospects.

4. The meeting of the International Panel constitutes the conclusion of a major phase of that reflection process which included five regional symposia held respectively in Bangkok, Dakar, Beirut, Caracas and Paris. The deliberations of those symposia, which were available to the Panel in summary reports contained in a reference document, together with the deliberations of the Panel itself, and a number of specialized studies, will comprise the elements for a report on the future development of education, which will be published by Unesco.

5. As regards the nature of this prospective activity, the aim is not to follow a normative path in order to define a desirable future for education. Based on an interpretation as objective as possible of the trends observed in the development of education during the past 10 years in particular, the prospective reflection will aim at identifying, to the extent possible, present and future problems which these trends bring out or will bring out and factors likely to influence the development of education during the next two decades, and at defining various perspectives for reflecting on the future of education. Thus, this exercise should help to provide the Member States of Unesco with elements which could be useful for the elaboration of their own long term strategies and plans concerning the development of education, with a view to orienting this development toward desirable objectives or, in certain cases, to correcting current trends.

6. The Panel unanimously elected Mrs. R. Bjerregaard (Denmark) as chairman of the meeting, and Mrs. Khunying Ambhorn Meesook (Thailand) and Mr. Jean Pliya (Benin) as vice-chairman, and Mr. Milan Milutinović (Yugoslavia) as rapporteur. The meeting comprised seven half-day working sessions, Monday through Thursday noon, and a final session on Friday afternoon, 21 November, for adoption of the report. The Panel had before it an agenda established by the Director-General (see Annex I) and a working document, as well as a limited number of information and reference documents. See the list of documents in Annex III. While the following report contains a number of the main considerations expressed during the discussions of the Panel, it should not be regarded as a full account of all viewpoints put forward by the members of the Panel.

I. SIGNIFICANT RECENT TRENDS IN EDUCATION

7. The Panel considered that a certain number of trends and phenomena evident in the recent evolution of education will have particular importance for the future. When viewed in a broad historical perspective, the evolution of education can be seen as a gradual but continual process with certain distinct stages corresponding to the phases of the development of society, each requiring a greater utilization of human potential to meet new economic and social needs. Some thought that in general terms, the first stage of educational development is the generalization of primary or basic education, followed by a second stage during which access to some secondary education, both general and technical, is made available to all ; the third stage is the generalization of secondary education and the expansion of higher education. Of course these stages may differ somewhat from country to country, and it was pointed out that in certain cases the development of higher education is in fact a prerequisite for the effective development of the preceding levels. Doubt was also expressed, in this regard, about the suitability of the European models as a guide for the development of educational systems in other regions ; nearly all of the developing countries have tried to apply one or more of these models but have found them inappropriate to their particular culture and social-economic needs. One result of this imitation of European models is a noticeable trend toward the uniformization of education.

8. The Panel drew attention to the dialectics of interaction between two major trends of educational development which most probably will continue in the forthcoming two decades. On the one hand there is a noticeable trend towards the uniformization of education, determined by various forces such as scientific and technological progress, increasing economic and cultural co-operation. On the other hand the tendency towards increasing diversity of patterns of educational development in various countries and often within the same societies was mentioned.

9. The participants emphasized the increasing diversity of goals, concepts and patterns of educational developments in different societies. There were views expressed that education is static, without essential progress in the last 2-3 decades. Others felt on the contrary that the progress of education as a whole is undeniable during this period, particularly in the developing countries. For the first time in history the national systems of education established in the majority of the countries of the world have experienced enormous quantitative expansion accompanied by considerable innovations in the quality of education. It was felt that the future development of education will not necessarily take place according to linear extrapolation, and it is expected that the most profound innovations in the field of education will most likely take place in the developing countries. The future development of education will of course be a function of the development of society but will also be a contributing factor to social development, as well as to the harmonious development of the individual.

10. A certain broadening of the concept of education was noted. Today education is no longer synonimous with schooling. It includes also various old and new non-formal methods in developing countries. Education needs to include traditional forms of learning as well. This broadened concept is significant, for example, when considering education in relation to the world of work : in the opinion of some participants, whereas an illiterate worker is at a distinct disadvantage in the modern sector of the economy he or she does not necessarily need to be literate to learn the skills and crafts needed for the traditional sector ; in fact the illiterate craftsman is probably better fit for social survival than the school drop-out who is partially "educated" in the modern sense, but who has no useful skills. Education might better be assessed in respect to its contribution to developing the individual's inherent capacities and to preparing him or her to function effectively in society.

11. The participants felt that the rapid expansion of education during recent years is a direct result of the widespread policy of democratization. However, this quantitative dimension of educational development has sometimes been accompanied by a lowering of the quality of education, loosening of structures, as limited resources were applied to ever greater numbers of pupils ; one example given is a school system operating four two-hour shifts per day. One result of this situation in certain countries is a diversity of educational patterns and the coexistence of two or more parallel education systems in the same country : on the one side, private institutions offering quality education for an élite, on the other side of the extreme, public schools catering to the masses.

12. Another aspect of the evolution of education in many countries at different levels of development is, in the opinion of some, the awareness of the danger of attempts to transfer full responsibility for the education of the young from the family and the local community to the school. This has often contributed to the breakdown of the traditional family ties. Dissatisfaction with the school, deriving from the unrealistic and unrealizable expectations of parents and pupils, is now leading to a search for ways of improving the efficiency and relevance of the school, notably through the participation of parents and the local community in the education process.

13. A definite evolution of the role of the teacher is evident in many countries, although in some cases this evolution is mainly an accumulation of additional tasks. Despite the change of functions and the increasing demands being made on the teacher, teacher-training programmes in most countries have not kept pace, nor has there been any significant change in the status of the teacher, or improvement in his conditions of service.

14. In higher education, there appears to be a growing recognition of the importance of research in the education process and for the development of society. However, with the exception of some developed countries, one could not yet say that this recognition is manifest as a trend in practice ; in fact it was observed that universities in developing countries still make very little contribution to scientific research.

15. During the past two decades many countries have undertaken educational reforms, but these initiatives were often unfruitful because of the lack of sufficient resources, the resistance of parents and teachers, or inadequate and unsustained political will to see the reform through to its conclusion. In some cases, there has even been a return to the situation prior to the attempted reform. The disappointment deriving from these experiences has caused a certain scepticism toward educational reform and contributed to a more cautious and reflective approach to educational development, which increasingly viewed in the framework of integrated socio-economic planning. A recent trend which has a long history in a few countries, is participatory planning, which enables those directly concerned with the education process to participate in its planning and management, as well as in policy-making. It was felt that this trend, if it develops significantly, may prove to be one means to overcome numerous weaknesses of education. It may provide support to educational policies and to educational plans by various social groups, local communities, by teachers and their unions, as well as by parents and students themselves.

II. MAJOR PROBLEMS OF EDUCATIONAL DEVELOPMENT AND THEIR RELATIONSHIP WITH SOCIO-ECONOMIC AND CULTURAL DEVELOPMENT

16. The group discussed at length the question of the democratization of education, chiefly at the levels of primary and basic education, from the point of view of the importance to be attached to it and the problems to be resolved. It was noted that it might be useful to define the concept of democratization as a basic requirement of the individual and of society as well as ways and means of achieving it. However, whereas in some countries education has already been made more egalitarian, particularly by opening up schools to workers and peasants in accordance with procedures adapted to their needs, in other countries education retains its elitist character ; one speaker even indicated that in his country there was resistance to democratization on the part of privileged groups.

17. Furthermore, one must recognize the existence in certain countries of real difficulties to achieve equalization of the prospects for access to and success in education in the short term. It was repeatedly emphasized that the increase in enrolments and the broadening of access to education should not occur at the expense of educational quality. Thus, a number of participants noted that democratization does not imply either a levelling downwards or a process of standardization but is designed to enable each student to exploit his abilities to the full and to ensure that neither the weakest nor the best are neglected. However, some participants expressed the view that countries will be faced with a growing need for highly trained intellectuals and that education should accordingly facilitate the full development of the capacities of the most gifted children, while others stressed the possible dangers involved in arranging special classes for exceptionally gifted children, since this could accentuate the socio-cultural differences created by the family environment. Efforts being made to promote special educational facilities for handicapped young people should be intensified.

18. The equalization of opportunity for success in education involves also the methods and content of education, which should be relevant to the needs of all learners. One of the participants emphasized, for example, that the broader application of an active pedagogical approach could help to introduce democratic practices and relationships in the classroom. It was also mentioned in this connection that the development of pre-school education, both within the home and within programmes for groups of children, appears to be an important factor, if begun at a very early age, for overcoming social and cultural disadvantages, thereby contributing to the conditions for genuinely equal opportunity for scholastic achievement.

19. It emerged from the discussions that one of the obstacles to democratization in some regions is the fact that a foreign language is frequently used as the medium of teaching and that the teaching staff is also, in large measure, of foreign origin, especially in the scientific disciplines. These two factors make it difficult to preserve the cultural identity and endogenous character of education, which are indispensable for any attempt at democratization.

20. One of the most important aspects of the democratization of education is the need to ensure equal access to education for women and girls. All efforts to this end must take account of the socio-economic role that women play, both in the context of child education and in the national economy. Some participants stressed that women's education should now be

considered in every respect as a priority issue ; its development will enable women to play a more active role in the contemporary life of society.

21. It must not be forgotten that the democratization of education also depends on efforts being made to provide free education at all levels, an objective which in many countries would lay a heavy financial burden on the community.

22. Some speakers were extremely sceptical about the effectiveness of education in its present form, and one of the participants went so far as to assert that no genuine reforms had occurred, because the problem of education had never been reviewed in its entirety, and partial reforms only served to perpetuate the underdeveloped conditions in certain countries. In a large number of countries education apparently remains authoritarian and academic, concentrating on the child as a future adult instead of as a child as such, and continues to promote competition and rivalry among children rather than co-operation and group-work. A really innovatory educational process should prepare children and young people for change and enable them to cope more effectively with their environment. Some participants advocated greater involvement of students in the organization of their education ; self-management was also mentioned as a management principle for education systems. In regard to the efficiency and quality of education, the importance was emphasized of developing pedagogical research and applying it in the learning process ; while biology is investigating the functioning of the brain and learning processes, in many countries these questions tend to be unknown in school practice both from the point of view of content and that of methods and resources.

23. In the context of linking education and employment, one participant noted the resistance encountered in attempts to introduce productive work into schools and asked whether productive work of some kind or other should be incorporated into the existing education system or whether students should be offered more effective training with a view to subsequent specialization.

24. With regard to possible and necessary structural changes, one participant raised the problem of the age of admission of children to school, since this does not take account of mental development which may vary enormously from child to child. It might also be desirable to introduce greater flexibility in regard to levels of attainment and to increase the specific character of curricula at different ages. Any planning of the future role of education must take greater account of the fact that education is a process that starts at birth and continues throughout life.

25. Several of the participants drew attention to the importance of quantitative and qualitative aspects of teacher training ; teachers should, in particular, play a major role in the renewal of education and be in a position to collaborate more closely with social partners outside the education system with a view to forging links between the school and society.

26. Some speakers pointed out that their country was still seriously handicapped by a lack of the financial resources necessary for the development of education ; it was even stressed that in some cases the share of education in national income was decreasing, which would seem

to indicate that education is no longer regarded as having a priority claim on the distribution of national resources. There is also a problem of allocation of resources as between different sectors and particularly as between formal and non-formal education. In this connection, it might be desirable to encourage more intensive use of school premises and installations, which in some cases represent idle capital.

27. From the point of view of social evolution but also of scientific and technological development, we are witnessing an increasing acceleration of the output of knowledge. One participant estimated that the volume of information is doubling every eight to ten years. Consenquently, the problem of adapting educational curricula to this rapid rate of change is going to become more pronounced. The growing importance of in-service and further training in the educational process must therefore be emphasized.

28. The relevance of education remains a key problem because if society reflects education, education equally reflects society ; in this connection numerous participants stressed the need to enhance the role of the family and the community in education, whereas in practice this role is often inadequate.

29. The relations between general culture and professional training were touched on by several participants. While initiation into human culture is accomplished through general education, particularly through the humanities and the social sciences, some participants considered that the world of work is also part of human culture ; therefore basic vocational knowledge and skills should be considered as important elements of general education.

30. With regard to the possible solutions of the problems mentioned, one cannot ignore that certain problems are more a matter of policy than of technique and thus fall in the purview of the public authorities. However, the participants felt that increased cooperation at international level, particularly within regions, could help to resolve a good number of educational problems.

III. FACTORS LIKELY TO AFFECT THE DEVELOPMENT OF EDUCATION IN THE NEXT TWO DECADES

31. The evolution of education will be determined in part by its own internal dynamics and in large part by its interaction with numerous external factors. One might also say that the evolution of education is closely bound up with scientific and technological progress and social change.

32. Although the growth and movement of populations was recognized as an important factor for planning the development of education, the Panel emphasized the implications of certain social changes, particularly the loosening of family ties. The family can be an active and positive factor in the education process or it can make little or no contribution, and in some cases may even constitute an obstacle. The world-wide phenomenon of rising expectations, fostered largely by the spreading influence of the mass media, constitutes another factor which may offer both opportunities and difficulties for educators in the future. On one hand, for example, this phenomenon serves as a stimulus to the social demand for education, but it also can distort the motivation for learning and lead to frustration when expectations are not fulfilled. One participant insisted very much, in this connection, on the need to develop population education still further.

33. The rigidity and inertia of power structures, as well as political instability and lack of commitment to education, were noted as factors which must be taken into account in gauging the prospects for educational development. In view of the acceleration of social change, and the consequent need for educational systems to adapt to new realities more rapidly than in the past, this political factor could prove a serious obstacle to educational development. One speaker warned that it is already too late to think in terms of adapting education to deal with new problems ; nothing less than an innovative mutation of forms and creative thinking is called for. If the present power elites cannot accept and implement this, they will be swept away by the confrontation of cultures which is already brewing.

34. The meeting stressed the importance of the internal factors of educational development which determined the internal dynamics of the educational process. An accurate assessment of the role of those factors depended on education being viewed not merely as a system made up of a large number of institutions but also as a range of educational activities carried on daily in various establishments of all kinds and at every level, and as the results of those activities, which may be considered as the product of the educational process. Education as understood in that context would have to free itself of certain features which were still very common today, such as elitism, authoritarianism, adult-orientation and excessive academicism, to say nothing of the fact that education was frequently accused of formalism and of a tendency to foster passive attitudes. The hope was also expressed that the emphasis of education would shift in the future from the imposed transfer of knowledge to the search for knowledge, carried out increasingly by the learner himself.

35. The participants were unanimous in their assessment of the role to be played by teachers in the education of the future. It was repeatedly emphasized that the teacher's role was going to assume greater

importance. The teacher would remain the central figure in the educational process despite all possible technical and technological innovations. At the same time, the rapid development of teaching content and methods would make greater demands on the professional qualities of teachers. That highlighted the importance of pre-service teacher training and a system of regular in-service training, in other words a mature and stable national system of teacher education.

36. Recognition of the more important role of the teacher was accompanied by a foreshadowing of developments in a process already discernible, namely, the alteration and proliferation of the teacher's functions. On top of his duty to transfer knowledge came the functions of leader, adviser, analyst, psychological evaluator, educational organizer and planner, co-ordinator of family and community educational activities, and many other tasks. A teacher's training had to make allowance for that. Attention was also drawn to the growing participation in the educational process of non-professionals (as teachers, advisers, etc.) and to the introduction of team teaching.

37. The development of science and technology as well as the rapid evolution of society and the complexity of certain social phenomena had given a new deminsion to the problem of the relationship between general and vocational education and between the basic training of future graduates and the training they received in their special field. Many of the participants stressed that narrow specialization, without a general theoretical foundation, led to a deterioration in the quality of training and restricted the field of action of future specialists. The view was expressed that a prospective engineer or technologist should today receive a broader scientific training, and the training in his specialization should be directed towards a specific end or an activity of a broadly practical nature. The same student should supplement and counterbalance his technological and scientific training by pursuing a course of studies in the social sciences and humanities. In addition, the future graduate would be even better prepared for his professional duties if he had had the opportunity to develop his feelings and emotions, to become involved in artistic activities and to discover the wealth of humanity's cultural heritage.

38. Scientific and technological progress was a major factor in determining the chief directions of the future development of education. Its influence was felt on several levels. The explosion in knowledge made it necessary to select information and to develop all kinds of cybernetic systems to provide back-up for the brain. Secondly, there was the rapid obsolescence and renewal of knowledge, with the consequent recognition of the importance of fundamental knowledge, general training and lifelong education, etc. Lastly, the reduction in lead time also implied new demands on education. Education must meet all those requirements for modified school and university curricula by changing the structure of the training of specialists and skilled labour, by introducing new techniques and individual working methods for students and, more generally, by adapting the teaching process to education's sophisticated technical base. The relationship between the fundamental, applied and specialized disciplines must always be optimized, as must the relationship between the various forms of teaching (lectures, seminars and practical studies). The introduction of research as an element of teaching was felt to be a better way of making education more scientific, and of removing the distinction between the transfer of knowledge and the production of new knowledge. In those circumstances, the

teacher in higher education became more of a researcher, and the renewal of his own knowledge became imperative.

39. Some specific aspects attach to the impact of scientific and technological progress on the future development of education in the developing countries. It has recently been acknowledged that the transfer of Western technology can not be considered sufficient to bring those countries into the mainstream of the scientific and technological revolution, and that they need their own scientific and technological potential. Here the role of education is paramount, especially in the training of scientists and the popularization of scientific knowledge, in the context of endogenous national development and the harmonious and balanced development of the individual, who very often remains attached to traditional values.

40. The educational impact of the media, for better or worse, is evident to educators and development planners in all countries. The media are considered in many countries to be a kind of parallel school for the masses. Whatever the case, the importance of the mass media cannot be ignored by educators any longer. It was suggested that the media ought to be a particularly useful means of reaching illiterate and poorly educated population groups, particularly older adults in rural areas, to convey educational messages which they can understand and apply. The use of the media can increase considerally the potential of the teacher but in no case should be considered as a substitute.

41. The future development of education was closely linked to the improvement of educational planning, which must face new challenges in both its theory and its practice. If it was to be effective, educational planning must take account of the prospects for the development of science and technology, and to some extent must reconcile contradictory objectives, since it must both provide appropriate training for each age-group and provide for continuity of training. It was suggested that planning should determine the major trends of the development of education in society, and that that dis not exclude a degree of decentralization of efforts to achieve planned objectives.

42. It was observed that mankind already possessed sufficient resources to eliminate illiteracy. It was further noted that the political will which governments attached to the priority they accorded to education was wavering and sometimes very slight. The major impediment to the solution of the problem was the lack of resources. It was further emphasized that the successful literacy campaigns had been those in which extensive use had been made of sweeping social action, and hence of resources other than financial. It was supposed that the considerable potential of the mass media might be tapped to those ends, and that a combination of modern and traditional educational methods was required. Where a choice must be made, priority should, in the view of many, be given to education for school-age children, and only secondarily to adult literacy work.

43. One factor likely to influence the future development of education was resources. The slowdown in the growth rate of resources made available to education, which had become quite marked over the last decade, was seen as discouraging. It was observed that the action taken in various countries to deal with various educational problems - most often relating to literacy education - was too often thwarted by lack

of resources. It was felt especially that the major impediment to solving the problems of the generalization of primary education, which had become the paramount socio-economic and cultural need in the developing countries, was the lack of resources, and that both nationally and internationally, special action was needed to solve those problems. It might be necessary to update the concept of educational expenditure to bring out the fact that in economic planning, there was no one way traffic between economy and education, and that educational expenditure was very often the most effective investment as compared with other activities - not to mention the fact that education had many other social functions. It was mooted - and widely agreed - that the more efficient use of available resources was another aspect of that problem, and likewise that national and international efforts should be undertaken to muster new resources, both financial and material.

44. In the course of the discussion of the impact of these several factors on education, a number of suggestions were made regarding possible priorities for educational development over the next 20 years. The importance of extending primary or basic education to as wide a portion of the population as possible was stressed, especially with reference to the developing countries. Some underlined the central significance of the basic literacy and numeracy skills. Others felt that general and vocational elements need to be harmonized, and still others advocated a larger share of the curriculum for the social sciences and humanities. One participant felt that the school curriculum should be given more of a scientific orientation. In order to enable the educational process to cater to the very specific needs and capabilities of each individual and also to adapt to ever-changing social situations, versatile schools and flexible education systems will need to be devised for the future. Finally, it was proposed that the education process should be developed as a truly lifelong process, covering infancy and early childhood as well as childhood, youth, and adulthood, and taking into account the particular learning needs at each stage of life.

IV. SUGGESTIONS REGARDING TOPICS TO BE COVERED BY SPECIAL STUDIES

45. During its final working session, the Panel considered some possible themes which might be studied in depth and included in the Unesco report on the future development of education. The representative of the Director-General, referred to the following criteria for their selection : they should take into account major trends and problems for educational development and explore its probable prospects in the next two decades ; the themes should be logically interrelated and together present an image of the probable evolution of education in various parts of the world ; the themes should be consistent with the prospective approach, rather than a normative one. The Assistant Director-General indicated that the task at hand was not to elaborate a systematic and exhaustive table of contents for a final report, but rather to define topics which merit exploration.

46. The participants found that the following themes should be developed in the Unesco report (§) :

(a) The recent evolution of the concepts and the future objectives of education in relation to the evolution of society :

- education in future society ;
- Education for the world of work ;
- education for endogeneous development ;
- education for individual self-reliance ;
- ethical education for the promotion of basic human values ;
- the role of the school, the family and the community in education ;
- population education.

(b) The historical dimension of the evolution of patterns of educational development :

- continuity/discontinuity ;
- uniformity/diversity ;
- factors acting in one direction or in the other.

(c) The probable evolution of the idea of democratization in the future development of education :

- relationship of the ideas of democratization and generalization of education ;
- equality of access and chance for success ;
- priority for primary (basic) education ;
- maximization of each individual's capacities ;
- political will and social action to eliminate illiteracy in the future.

(§) N.B. : the phrases shown under each theme are merely indicative of the content.

(d) The interrelationship between education, culture and scientific and cultural progress :

- harmonizing modernization with traditional values and preserving cultural identity ;
- importance of education in the mother tongue.

(e) The financing of education : trends, priorities and prospects :

- concepts and trends in educational finance ;
- application of cost/efficiency methods ;
- mobilization of supplementary national and international resources ;
- more efficient utilization of available resources.

(f) The role of the teacher in education tomorrow :

- new functions and responsibilities ;
- social status, remuneration, recruitment and professional advancement ;
- new tasks for teacher training, including systematic in-service training ;
- participation of teachers and para-teachers in planning and decision-making ;
- parent participation.

(g) The mass media in the educational process of tomorrow :

- prospects for cooperation between the media and education systems ;
- role of the media in basic and out-of-school education ;
- importance of the media for illiterate populations.

(h) The role of the education of women in the future development of education and of society ;

- equality of opportunity for girls and women ;
- importance of the mother in the education of young children.

(i) The learning process : current trends and future prospects :

- status of research on the learning process ;
- internal dynamics and organization of the process ;
- role of productive work in education ;
- students and national development problems ;
- organization of individual study in relation to group work and lectures.

(j) Participation in planning and decision-making relating to education :

- formulation of strategies and prospective planning for the development of education ;
- application of "self-management" to education systems and institutions ;
- conception of flexible systems and polyvalent institutions ;
- conditions for the long-term planning and development of education.

47. One of the participants, supported by many others, proposed to regroup the above themes under three headings :

1. educational goals and objectives (comprising themes a, b, and c) ;

2. educational actions, pedagogical issues (comprising themes f, g, i, and j) ;

3. relationship between education and society (comprising such themes as d, e, and h).

Another proposal would regroup themes a, b, c, d and h together in the first part of the Unesco report and the other themes in a second part. Yet another proposal foresaw a report having five parts : (i) problems of quality and excellence of education tomorrow ; (ii) quantitative expansion of education in conformity with the needs of society and with social demand ; (iii) the material and technical basis for education in the future and the problems of financing ; (iv) life-long education ; and (v) interaction between education, science and production. Finally, a further proposal would structure the Unesco report according to the sequence of questions formulated in paragraph 130 of the Working Document. One participant emphasized the importance of the linkage between the several themes to be treated in the report.

48. Several participants noted that some major issues of future education development such as alternative patterns of education for peace and international understanding or future educational structures, or changing relationship between education and the world of work, are not sufficiently reflected in the proposed themes. Others were of the opinion that some of the topics may be developed under theme (a). For example, education for peace and international understanding were proposed to be studied under theme (a) on goals and concepts of education. Another speaker referred to the possibility to concentrate the report on issues which will most probably be of common concern for the whole of mankind, structuring it under such broad categories as quantitative and qualitative dimensions. He underlined specifically the decisive role of scientific and technological advancement. Others, agreeing with this analysis were of the opinion that some harmful effects of this advancement, in particular, its dehumanizing effects should not be overlooked, as well as the role of education in correcting these harmful effects.

49. Several times participants mentioned the need to give priority, in case the available resources for education were insufficient, to forms of education which benefit children in the first instance rather than adults. They considered that this supposition also deserved to be treated in the Unesco report.

50. Several participants accorded special attention to the problem of developing ethical, moral and other basic human values, often called traditional values, during the entire period of a child's education, with dignity and appreciation of the child as a human being and member of society, not merely as an individual to be filled with knowledge and rules of behaviour. An optimal relationship between modern and traditional instructional approaches ought to be sought in this regard.

V. CLOSING SESSION

51. At the closing session, the Director-General addressed the meeting to thank the chairman and the members of the panel for their valuable intellectual contribution to the work of Unesco. He assured them that the problems raised during the meeting would be examined in depth and dealt with in the preparation of the report to be submitted to the next session of the International Conference on Education at Geneva in 1981.

52. With regard to the development of education, the Director-General considers this "an extremely complex task, extremely difficult, but one which we must confront with all the necessary rigour and all the necessary determination". Education "is obliged to ground itself on the past and the present and should also anticipate the future, since the young people we educate today will begin to assume their responsibilities in a world which will certainly be different from the one in which we live. This is a fundamental problem to which educators must give attention ...". In the years ahead, "we must give more and more attention to the role of the mass media in relation to education and also to the possibilities offered by new technologies". Nevertheless, he indicated that "no matter what technologies one uses, nothing will replace the teachers" and "there cannot be good education without a good teacher and the training of teachers thus appears as a fundamental element in the educational process".

53. Finally, the Director-General underscored the importance of this reflective exercise in the framework of elaborating Unesco's second medium-term plan "which will lead us practically to the end of this decade and into the next decade... This will be a plan based on an analysis of the world situation. Following this analysis, we must ourselves draw conclusions with respect to the objectives which Unesco should pursue within the fields of its competence. Of course, we shall have to envisage matters with regard to the current situation of education but also as a function of its probable evolution, hence the importance which we attach to the work which you have accomplished here".

Annex I

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UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

Meeting of the international panel on the future development of education

Paris, 17-21 November 1980

AGENDA

1. Opening of the meeting
2. Election of the Chairman, Vice-Chairmen and Rapporteur
3. Significant recent trends in education
4. Major problems in the development of education in relation to socio-economic and cultural development
5. Factors likely to affect the development of education in the next two decades
6. Suggestions regarding topics to be covered by special studies
7. Adoption of the report of the meeting
8. Closing of the meeting.

I. PRINCIPAL PARTICIPANTS/PARTICIPANTS PRINCIPAUX

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V. OBSERVERS FROM NON-GOVERNMENTAL ORGANIZATIONS/OBSERVATEURS DES ORGANISATIONS NON-GOUVERNEMENTALES

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INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS. CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES

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Mr. André DRUBAY
Secretary-General
International Federation of Secondary Teachers (FIPESO)

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Mr. Mahdi ELMANDJRA
President

VI. SECRETARIAT OF THE MEETING/SECRETARIAT DE LA REUNION

A. Representative of the Director-General/Représentant du Directeur général

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B. Secretariat of the Meeting/Secrétariat de la réunion

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Annex III

Distribution: limited

ED-80/FUTURED/INF.4
Paris, 14 November 1980

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Rules of Procedure	- ED-80/FUTURED/2
Main Working Document	- ED-80/FUTURED/3
General Information	- ED-80/FUTURED/INF.1
Provisional List of Participants	- ED-80/FUTURED/INF.2
Timetable	- ED-80/FUTURED/INF.3
List of Documents	- ED-80/FUTURED/INF.4
Regional Symposia on the Future Development of Education	- ED-80/FUTURED/REF.1